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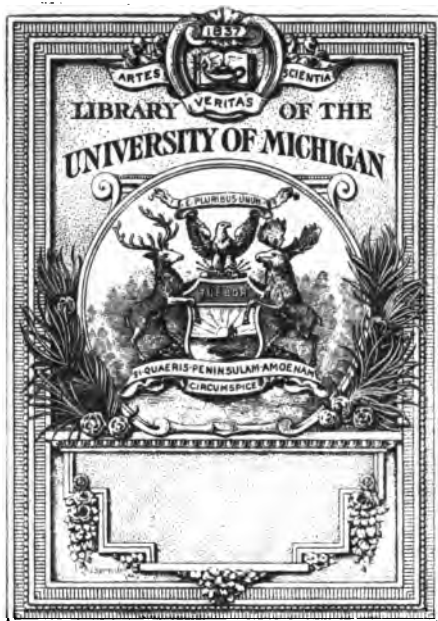
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Yours truly J. A. Smith.

ANNUAL REPORT
OF THE
WISCONSIN
State Horticultural Society

EMBRACING

**PAPERS READ AND DISCUSSIONS THEREON AT THE SEMI-
ANNUAL MEETING HELD IN BLACK RIVER FALLS
JUNE 26-27, 1890. ALSO AT MADISON JUNE 2-6, 1891.**

VOLUME XXI.

PREPARED BY

B. S. HOXIE, Secretary,

EVANSVILLE, WIS.



**MADISON, WISCONSIN:
DEMOCRAT PRINTING COMPANY, STATE PRINTERS.
1891.**

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LETTER OF TRANSMITTAL.

TO GEORGE W. PECK,

Governor of the State of Wisconsin:

SIR:—I have the honor of presenting to you the twenty-first annual volume of transactions of the Wisconsin State Horticultural Society, containing full accounts of the receipts and expenditures of the society for the year 1890, together with reports of the proceedings of the annual and semi-annual meeting, embracing papers read and discussions thereon.

Believing that this society is doing good work not only for the pomology of our state, but also in directing thought to the adornment of public and private grounds,

I have the pleasure of subscribing myself,

Respectfully yours,

B. S. HOXIE.

Secretary Wisconsin State Horticultural Society.

EVANSVILLE, WIS., Apr. 22, 1891.

WISCONSIN STATE HORTICULTURAL SOCIETY.

OFFICERS FOR 1891.

M. A. THAYER, President,	Sparta.
L. G. KELLOGG, Vice President,	Ripon.
B. S. HOXIE, Secretary,	Evansville.
MRS. VIE H. CAMPBELL, Treasurer,	Evansville.
A. L. HATCH, Corresponding Secretary,	Ithaca.

EXECUTIVE COMMITTEE.

Ex-Officio.

THE ABOVE OFFICERS.

By Election.

GEO. J. KELLOGG, Janesville.	J. M. EDWARDS, Fort Atkinson.
C. H. HAMILTON, Ripon.	DANIEL HUNTLEY, Appleton.
GEO. H. ROBBINS, Platteville.	C. A. HATCH, Ithaca.
JAMES CURRIE, Milwaukee.	J. J. MCGILLIVRAY, Black Riv. F'ls.
WM. SPRINGER, Fremont.	

COMMITTEES FOR 1891.

By Appointment.

ON LOCAL EXPERIMENTAL STATIONS.

R. J. COE,	} Horticultural Society.	Fort Atkinson.
WM. TOOLE,		Baraboo.
A. D. SEYMORE,		Mazomanie.
PROF. E. S. GOFF,	} University.	Madison.
PROF. W. A. HENRY,		Madison.

NEW FRUITS.

A. J. PHILIPS,	West Salem.
C. H. HAMILTON,	Ripon.
WM. FOX,	Baraboo.

NOMENCLATURE.

F. K. PHOENIX,	.	.	.	.	.	.	.	Delavan.
CHAS. HIRSCHINGER,	.	.	.	.	.	.	.	Baraboo.
S. W. USHER,	.	.	.	.	.	.	.	South Wayne.

LEGISLATION.

J. M. SMITH,	.	.	.	.	.	.	.	Green Bay.
WARREN GRAY,	.	.	.	.	.	.	.	Darlington.
N. N. PALMER,	.	.	.	.	.	.	.	Brodhead.

FINANCE.

MATT. ANDERSON,	.	.	.	.	.	.	.	Pine Bluff.
JOHN HOWE,	.	.	.	.	.	.	.	Waunakee.
C. E. TOBEY,	.	.	.	.	.	.	.	Sparta.

TRANSPORTATION.

A. I. GALE,	.	.	.	.	.	.	.	Waukesha.
D. C. CONVERSE,	.	.	.	.	.	.	.	Fort Atkinson.
F. C. EDWARDS,	.	.	.	.	.	.	.	Fort Atkinson.

MEMBERS OF THE SOCIETY.

LIFE MEMBERS.

Geo. J. Kellogg,	Janesville.
F. W. Loudon,	Janesville.
H. S. Woodruff,	Janesville.
Mrs. Ida Tilson,	West Salem.

HONORARY LIFE MEMBERS.

J. M. Smith, ex-President,	Green Bay.
Dr. Joseph Hobbins, F. C. S., Corresponding Member	
Royal Hort. Soc., ex-Pres.,	Madison.
O. S. Wiley, ex-Secretary,	Madison.
F. W. Case, ex-Secretary,	Chicago, Ill.
Prof. Wm. Trelease,	St. Louis, Mo.
J. S. Stickney, ex-Pres.,	Wauwatosa, Wis.
A. G. Tuttle, ex-Pres.,	Baraboo.
B. F. Adams,	Madison.
F. K. Phoenix,	Delavan.
Peter M. Gideon,	Excelsior, Minn.
E. Wilcox,	La Crosse, Wis.

ANNUAL HONORARY MEMBERS.

J. S. Harris,	La Crescent, Minn.
W. B. Lloyd,	Chicago, Ill.
Jonathan Periam,	Chicago, Ill.
Orange Judd,	Chicago, Ill.
Prof. W. A. Henry,	Madison, Wis.
Prof. A. J. Cook,	Lansing, Mich.
C. G. Patten,	Charles City, Iowa.
Chas. W. Garfield,	Grand Rapids, Mich.
Hon. John B. Peaslee,	Cincinnati, Ohio.
Edgar Sanders,	Chicago, Ill.
H. F. Thurston,	Chicago, Ill.
Miss Lizzie Gillies,	Evansville, Wis.
I. I. Lyon,	South Haven, Mich.
Henry W. Ash,	West Union, Iowa.
Geo. E. Morrow,	Champaign, Ill.
Mrs. Carrie S. Hobart,	Black River Falls.

LIST OF ANNUAL MEMBERS, 1891.

(Annual membership fee in this society is \$1.00 per annum and expires February 1, with current year. This list contains all names of members received up to time of printing this volume.)

Anderson, Matt, Pine Bluff.
Adams, B. F., Madison.
Adams, Miss Nora, Evansville.

Beals, C. W., Beloit.
Boyce, A. A., Dane,
Barnes, A. D., Waupaca.
Bendixen, W. J., Waupaca.
Boynton, W. D., Shiocton.

Coe & Converse, Ft. Atkinson.
Cook, Alexander, Waukesha.
Campbell, H. C., Evansville.
Campbell, Mrs. Vie H., Evansville.
Chappel, F. H., Oregon.
Currie, James, Milwaukee.
Crosby, Mrs., Black River Falls.
Crosby, J. P., Black River Falls.
Carter, G. W., Waterloo.

Duxbury, Mrs. Mary, Hixton.

Edwards, J. M., & Son, Ft. Atkinson.
Edwards, F. C., Ft. Atkinson.

Fenelon, C. M., Weyauwega.
Field, S. F., East Troy.
Freeborn, S. I., Ithaca.
Fox, Wm., Baraboo.

Goff, E. S., Madison.
Gale, Isaac, & Son, Waukesha.
Gibson, Hollis, Lind.
Gray, Warren, Darlington.
Gibbons, M., Berlin.
Gibhart, Sarah, Black River Falls.
Gilmore, H., Georgetown.
Gaynor, J., Grand Rapids.

Hatch, A. L., Ithaca.
Hatch, Mrs. A. L., Ithaca.
Hatch, C. A., Ithaca.
Hoxie, B. S., Evansville.
Hoxie, Mrs. E. A., Evansville.
Hartle, Mrs. Mary, La Crosse.
Harden, F. A., Weyauwega.
Hirschinger, Baraboo.
Hamilton, C. H., Ripon.
Hamilton, Mrs. C. H., Ripon.
Hill, Geo. C., Rosendale.
Hanchett, Geo. & Son, Sparta.
Howie, John, Waunakee.
Head, J. C., Black River Falls.

Holmes, W. H., Waupaca.
Hunter, Thomas P., Shamrock.

Ingalls, S. M., Fond du Lac.

Jewett, Z. K., Sparta.
Jones, Samuel, Black River Falls.
Jeffrey, Geo., 2726 Lisbon ave.,
Milwaukee.
Jenney, J. M., Weyauwega.

Kellogg, L. G., Ripon.

Leigh, John, Mazomanie.
Lloyd, W. B., Prospect Park.

McGillivray, J. J., Black River Falls.
Morrison, W. H., Madison.
Marsh, John, Black River Falls.
McColm, J. N., Plymouth.
Mason, R. D., & Son, Ripon.
Mills, Simeon, Madison.

Palmer, N. N., Brodhead.
Philips, A. J., West Salem.
Price, Mrs. W. T., Black River Falls.
Prindle, A. W., Merrillon.

Reynolds, Werden, Green Bay.
Robbins, Geo. W., Platteville.

Spry, John, Ft. Atkinson.
Smith, J. M., Green Bay.
Seymour, Asa N., Mazomanie.
Sargent, Mrs. Ella, Sparta.
Spaulding, D. J., Black River Falls.
Steinfert, H., Wauwatosa.
Springer, Wm., Freemont.

Thayer, M. A., Sparta.
Thayer, Mrs. Minnie, Sparta.
Toole, Wm., Baraboo.
Tobey, C. E., Sparta.
Tobey, Mrs. May, Sparta.

Usher, S. M., South Wayne.

Walstrum, J. F., Otsego, Mich.
Williams, Daniel, Summit.
Wakefield, J., Fremont.
Wartfield, B. C., Sandoval, Ill.

Yahr, Solon, West Bend.

AD INTERIM COMMITTEE.

It is earnestly hoped and expected, that each member of this committee will be present at our next annual meeting, and be prepared to report on the horticultural aspects in the several divisions of our state. Let these reports embrace notes, observations, and suggestions, for the benefit of Wisconsin Horticulture. If not convenient to attend, please send in your report previous to the annual meeting, which will be the first week in February.

Geo. P. Pepper, Pewaukee,
Daniel Huntley, Appleton,
Fred. Harden, Weyauwega,
M. Gibbons, Berlin,
A. L. Hatch, Ithaca,
Delbert Utter, Caldwell,
Mr. Davenport, Auroraville,
H. Gilmore, Georgetown,
Wm. Toole, Baraboo,

D. C. Converse, Ft. Atkinson,
Warren Gray, Darlington,
Geo. J. Kellogg, Janesville,
O. C. Cook, Oconto,
Daniel Williams, Summit,
Mrs. Mary Hartley, La Crosse,
John Rhodes, Kansasville,
Geo. C. Hill, Rosendale,
Cyrus Church, Walworth.

FRUIT LIST.

APPLES.*

Five Hardest Varieties for Northern Wisconsin — Oldenburg, McMann's White, Hibernial, Wealthy and Tetofski.

Ten best adapted varieties — *Hardiness, productiveness and quality taken into consideration* — Oldenburg, Wealthy, Fameuse, Tallman Sweet, Wolf River, McMann's White, Yellow Transparent, Hibernial, Longfield and Newel's Winter.

Additional list for special locations — Tetofski, Red Astrachan, St. Lawrence, Fall Orange, Fall Spitzenburg, Alexander, Utter, Westfield, Willow Twigg, Golden Russet, Walbridge, Pewaukee, Haas, Plumb's Cider, Roman Stem, Transparent, and Repka Melenka, with Windsor for trial.

CRAB APPLES.

Four hardest and best — Transcendent, Hyslop, Martha, and Sweet Russet.

For general cultivation — Whitney No. 20, Gibb, Hyslop, Sweet Russet, Transcendent, Martha, Novelty and Spitzenburg.

* NOTE. — The question of adaptation of varieties is one so largely dependent upon local conditions of soil, elevation and aspect, that a general list will not answer fully the wants of every planter, and at best can only be a general guide in the selection of varieties.

For more specific directions, the following rules are furnished by the committee chosen for this purpose:

1. Locations comparatively elevated and well drained, with a cool northern aspect and limestone clay soil, not very rich, may extend the general list named above to an indefinite extent, with fair prospect of success in southern and eastern districts of the state. But for warm, sheltered location and rich soils, which induce a great growth, no section of our state can safely plant other than those varieties known to be extremely hardy.

2. The best guide in the selection of varieties is for each to plant largely of such varieties as are found successful in locations similar to that each must plant upon. For all unfavorable locations, and extreme northern districts, only the most hardy, well tried apples of the Russian or Siberian types should be chosen for general planting.

3. In the extreme northern districts, only the crown of the hills should be chosen for the orchard, with a firm soil and porous subsoil, and if these materials are wanting naturally they should be supplied artificially.

4. Better plant but few varieties.

STRAWBERRIES.

For general cultivation — Wilson, Crescent, Jessie, Bubach, Warfield, Haverland and Captain Jack.

For light or sandy soil — Crescent, Wilson, Manchester and Warfield.

For trial — Gandy, Michels Early and Parker Earle.

GRAPES.

For general cultivation — Moor's Early, Worden, Concord, Delaware, Brighton and Telegraph.

Frosty and unfavorable localities — Janesville, Moor's Early, Victor and Ulsters.

For trial — Niagara, Lady, Wyoming, Lindley, Vergennes, Massoit, Wilder, Conqueror and Black Hawk.

BLACK RASPBERRIES.

For general cultivation — Gregg, Ohio, Souhegan, Nemaha; recommend with winter protection. Ohio may do without protection.

For trial — Johnson's Sweet.

RED RASPBERRIES.

For general cultivation — Cuthbert, Turner, Brandywine and Shaffer's Marlboro, with winter protection. Turner may do without protection. Golden Queen for trial.

BLACKBERRIES.

For general cultivation — Snyder, Stone's Hardy, Ancient Briton. (Winter protection is recommended for all.)

For trial — Taylor, Bartel's Dewberry on clay soils and Lucretia. (Winter protection is recommended for all.)

PEARS.

New sorts for trial — Bessimianka, Gakovska.

Most likely to succeed — Flemish Beauty.

For trial in the lake shore regions — Ananas d'Été, Early Bergamont, Bartlett, Onondaga (Swan's Orange), Seckle, Winter, Nélis, Clapp's Favorite, Beurré d' Anjou, Doyenné d'Été.

PLUMS.

For general cultivation — De Sota.

For special localities — Lombard, Imperial Gage, Yellow Egg (*Magnum* Duane's Purple.

For trial — Cheney, Rollingstone, Wolf.

CHERRIES.

For general cultivation — English Morello, Early and Late Richmonds.

Trial — Wragg, Ostheim and Bessarabian.

CURRANTS.

Red Dutch, White Dutch, White Grape, Victoria, Fay's Prolific, Albert, Holland and Lees.

Fay for trial.

GOOSEBERRIES.

Houghton, Downing, American Cluster, Smith's and Industry for trial.

TREES AND SHRUBS RECOMMENDED.

EVERGREENS.

For General Planting — in order named: White Pine, Norway Spruce, White Spruce, Arbor Vitæ, Balsam Fir, Austrian Pine, Scotch Pine.

For Ornamental Planting — in order named: Hemlock, Red Cedar, Siberian Arbor Vitæ, Dwarf Pine, Red or Norway Pine.

DECIDUOUS TREES.

For Timber — White Ash, Black Walnut, Hickory, Black Cherry, Butternut, White Oak, European Larch, American Larch.

Street Shade Trees — White Elm, Hard Maple, Basswood or Linden, Ashleaf Maple (*Acer Negundo*), Norway Maple, Hackberry.

For Lawn Planting — Weeping Cut leaved Birch, American Mountain Ash, Green Ash, Horse Chestnut, European Mountain Ash, Wisconsin Weeping Willow, Oak-leaved Mountain Ash, White Birch, Weeping Golden-barked Ash, Weeping Mountain Ash, Weeping Poplar.

ORNAMENTAL SHRUBS.

Hardy Shrubs — Snowball, Syringa, Upright Honeysuckle, European Strawberry Tree, Fringe or Smoke Tree, Purple-leaved Barbary; Lilac, White, Purple and Persian; Black Alder; Nine Bark.

Half Hardy Shrubs — Deutzia (*Gracilis*), Weigelia (*Rosea*), Flowering Almond, red and white; Spirea, Prunifolia and others, Flowering Quince, Cut-leaved Sumac, Hydrangea Grandiflora.

Climbers — American Ivy (*Ampelopsis quinquefolia*), Scarlet Honeysuckle (*Lonicera Sempervirens*), Fragrant Honeysuckle (*Lonicera Jackmanni*), Virgin's Bower (*Clematis Virginiana*), Climbing Bitter Sweet and Ampelopsis Veitchii.

ROSES (with protection).

Climbers — Queen of the Prairie, Gem of the Prairie, Baltimore Belle.

Moss Roses — Princess Adelaide, Luxembourg and others.

Hybrid and June Roses — Persian, Yellow Harrison, Madam Plantier, General Jacqueminot, La France, General Washington.

CONSTITUTION AND BY-LAWS.

As amended February, 1885.

CONSTITUTION.

ARTICLE I. This society shall be known as the Wisconsin State Horticultural Society.

ARTICLE II. Its object shall be the advancement of the art and science of horticulture throughout the state.

ARTICLE III. Its members shall consist of *annual* members, paying an annual fee of one dollar, which shall entitle the wife of such member to the privileges of full membership; of secretaries of local horticultural societies reporting to the state society, who shall be considered members *ex-officio*; of *life* members, paying a fee of ten dollars at one time; of *honorary life* members, who shall be distinguished for merit in horticultural and kindred sciences, or who shall confer any particular benefit upon the society; and *honorary annual* members, who may, by vote, be invited to participate in the proceedings of the society.

ARTICLE IV. Its officers shall consist of a President, Vice-President, Recording Secretary, Corresponding Secretary, Treasurer, Superintendent, and an Executive Board, consisting of the foregoing officers and additional members, one from each congressional district of the state, five of whom shall constitute a quorum at any of its meetings. In addition to the foregoing officers, the presidents of all local horticultural societies reporting to this society shall be deemed honorary members and *ex-officio* vice-presidents of this society. All officers shall be elected by ballot, and shall hold their office for one year thereafter, and until their successors are elected; provided, the additional executive members may be elected by the county or local horticultural societies of their respective districts.

ARTICLE V. The society shall hold its annual meeting for the election of officers, commencing on the first Monday in February. It may also hold a meeting in December of each year, at such place and time as may be decided upon by the society, or the executive committee for the exhibition of fruit and for discussions, and such other meeting for discussions and exhibitions as the executive committee may direct, at such time and place as the executive board shall designate.

ARTICLE VI. This constitution, with the accompanying by-laws, may be amended at any regular meeting, by a two-thirds vote of the members present.

BY-LAWS.

I. The president shall preside at meetings, and with the advice of the recording secretary, call all meetings of the society, and have general supervision of the affairs of the society, and shall deliver an annual address upon some subject connected with horticulture.

II. The vice-president shall act in the absence or disability of the president, and perform the duties of the chief officer.

III. The secretary shall attend to all the correspondence, shall record the proceedings of the society, preserve all papers belonging to the same, and superintend the publication of its reports. He shall also present a detailed report of the affairs of the society, at its annual meeting. He shall also endeavor to secure reports from the various committees, and from local societies of the condition and progress of horticulture in the various districts of the state, and report the same to the society. It shall be the duty of the secretary to make an annual report to the governor of the state, of the transactions of the society, according to the provisions of the statutes for state reports.

IV. The treasurer shall keep an account of all moneys belonging to the society, and disburse the same on the written order of the president, countersigned by the secretary, and shall make an annual report of the receipts and disbursements, and furnish the secretary with a copy of the same, on or before the first day of the annual meeting. The treasurer elect shall, before entering upon the discharge of the duties of his office, give good and sufficient bonds, for the faithful performance of his duties, subject to the approval of the executive committee.

V. The executive board may, subject to the approval of the society, manage all its affairs and fill vacancies in the board of officers; three of their number, as designated by the president, shall constitute a finance committee.

VI. It shall be the duty of the finance committee to settle with the treasurer, and to examine and report upon all the bills or claims against the society which may have been presented and referred to them.

VII. The standing committees of this society shall be as follows: 1st, Committee on Finance, consisting of three members; 2d, Committee on Nomenclature and New Fruits, consisting of three members; 3d, Committee on Observation, as now provided. Said committee to be appointed annually by the executive committee of the society.

ACT OF RE-ORGANIZATION,
AND LAWS RELATING TO THE
STATE HORTICULTURAL SOCIETY.

CHAPTER 151, LAWS OF 1879, AS AMENDED BY CHAPTER 14, LAWS OF 1887.

SECTION 1. The executive committee of the Wisconsin State Horticultural Society, shall hereafter consist of the president, secretary and treasurer of said society, and of one member from each congressional district of the state, said members from the congressional districts to be chosen annually by the county and local horticultural societies in the respective districts.

SECTION 2. The present officers and executive committee of said society shall hold their respective offices until the Tuesday next succeeding the first Monday in February, 1880, and until their successors are appointed.

SECTION 3. It shall be the duty of said society to aid in the formation and maintenance of county and local horticultural societies, to promote the horticultural interests of the state by the holding of meetings for discussion; by the collection and dissemination of valuable information in regard to the cultivation of fruits, flowers and trees adapted to our soil and climate, and in every proper way to advance the fruit and tree growing interest of the state.

SECTION 4. The annual meeting of the society for the election of its officers, the transaction of general business, and the consideration of questions pertaining to horticulture, shall be held at such time and place as may be determined at the last preceding annual meeting. In case of the failure of such meeting to so determine, the executive board may call such meeting by giving at least thirty days' notice to each member of the society.

SECTION 5. All vacancies in the offices of said society may be filled by the executive committee; and should there be a failure to elect a member of the executive committee in any district, the vacancy may be filled by a two-thirds vote of the members of the society present at any regularly appointed meeting.

SECTION 6. It shall be the duty of the secretary of said society to make an annual report to the governor of the state of the transactions of the

society, including an itemized account of all money expended during the year, in addition to such matters as are now specified in the law relating to the same.

CHAPTER 526, LAWS OF 1889.

SECTION 5. And further, there shall be printed annually upon the approval and order of the commissioners of public printing, ten thousand copies of the transactions of the Wisconsin State Agricultural Society, the same to embrace the reports of the county and other agricultural societies, and such matters pertaining to the agricultural industries of the state as shall be deemed important, provided the whole number of printed pages shall not exceed four hundred. Seven thousand copies of the transactions of the Wisconsin State Horticultural Society, the same to embrace such abstracts of reports of county and other horticultural societies, and such matters pertaining to the horticultural interests of the state as shall be deemed important, provided that the whole number of printed pages shall not exceed two hundred. Eight thousand copies of the transactions of the State Dairymen's Association, the same to embrace such other matters pertaining to the dairy interests of the state as shall be deemed essential, provided that the whole number of printed pages shall not exceed two hundred. Twelve thousand copies of the report of the Agricultural Experiment station of the State University, provided that the whole number of printed pages shall not exceed two hundred and fifty. Two thousand copies of each of said reports to be bound separately in cloth, all others singly in paper.

SECTION 6. The reports provided for in the preceding section shall be distributed as follows, through the superintendent of public property: Fifteen copies to each member of the legislature, fifty copies to the State Horticultural Society, ten copies to each county agricultural society, and district industrial association, which embraces two or more counties and furnishes the State Agricultural Society a report of its proceedings, to each of the four societies named in the preceding section, fifty copies of each of the reports of the other three societies, twenty-five copies of each of the reports to the library of the state university, to the governor, lieutenant governor, secretary of state, state treasurer, attorney-general, states superintendent of public instruction, railroad commissioner and insurance commissioner, twenty-five copies each; to the state superintendent of agricultural institute, fifty copies; to the superintendent of public property, commissioner of labor statistics, adjutant-general, quartermaster general, state board of health, each ten copies; to each public library in the state two copies; to each state normal school, two copies; to each of the state charitable and penal institutions, one copy; and the remaining copies to the respective societies for distribution by their secretaries.

SECTION 7. In no case shall the number of printed pages in any report provided for in the act exceed the maximum number specified, except upon

written request of the officer submitting the same, and then only upon previous written approval of a majority of the commissioners of public printing, such application and approval to be filed with the secretary of state.

CHAPTER 417, LAWS OF 1889.

SECTION 1. The governor is hereby authorized to set apart by proclamation one day in each year to be observed as a tree planting or arbor day, requesting all public schools and colleges to observe the same by suitable exercises, having for their object the imparting of knowledge of horticulture, in the department known as arboriculture, and the adornment of school and public grounds.

SECTION 2. This act shall take effect and be in force from and after its passage and publication.

Approved April 16, 1889.

JOINT RESOLUTION No. 19, A.

WHEREAS, The Wisconsin State Horticultural Society has many valuable books which it is desirable shall be preserved; and

WHEREAS, Many such have heretofore been lost in moving from room to room; therefore,

Resolved by the assembly, the senate concurring, That room number twenty-seven (27) in the capitol, is hereby set apart for the permanent use of said horticultural society; provided, that nothing herein contained shall be construed to prevent its use by the clerical force of either branch of the legislature during any session thereof.

REPORT
OF THE
TRANSACTIONS OF THE SUMMER MEETING
OF THE
Wisconsin State Horticultural Society

Held in the Court House, at Black River Falls, June 26-27, 1890.

The summer meeting of the Wisconsin State Horticultural Society, convened at the court house, in Black River Falls, June 26, 1890, at 11 A. M. The first order of business was the appointment of committees:

On Program — B. S. Hoxie, Evansville; Mrs. D. Huntley, Appleton.

On Fruit — Prof. E. S. Goff, Hon. B. F. Adams, Madison.

On Plants and Cut Flowers — Mrs. Ella Sargent, Sparta; Mr. and Mrs. C. H. Hamilton, Ripon.

On Resolutions — Prof. E. S. Goff, Madison; A. I. Gale, Waukesha.

Mr. Adams reported fruit as all arranged. President Smith gave an opportunity for a short discussion of topics not on program; none being presented, after reading program for afternoon meeting, an adjournment was made until 1:30 P. M.

COURT HOUSE, 2 P. M.

President Smith in the chair.

Opened with music by the choir. President Smith said, in opening: "We were glad when we received the invitation to come to Black River Falls. I was desirous that the society should go to Green Bay, but it seemed more desirable that we should come here, and we are glad now that that we did so. Last year we went to Sparta and a new society was organized there, and whenever I hear of them I hear they are doing good work, and I believe they are. I believe our farmers ought to have the best living of any class of people in the state, but they are not, generally speaking, so living, and the reason is because they are not conversant with a few of the practical principles of horticulture. I think we are working in a direction with regard to the cultivation of apples, that will bring us all out right in the line of that fruit in the future, but we can, now, with little effort, have

all the small fruits we want. When I think of the changes wrought in my own home they seem almost incredible. If I had been told when I went to that place that I should make of it what I have, or that I should, like Elijah, go to Heaven in a chariot of fire, I would have believed one as much as the other; but I do not say this to boast, not by any means, but it seems to me that what we have done, and we have done it with limited means, any one can do.

I think in the discussion, that will be brought out here during this convention, we will listen to that which will profit us.

The address of welcome was given by Hon. J. J. McGillivray, Black River Falls.

Mr. President, Ladies and Gentlemen of Wisconsin State Horticultural society,—In behalf of the citizens of Jackson county we welcome you to our city; we welcome you as instructors. The young may here learn from the experience of those who have given a life time to the work of horticulture, and I am proud to be privileged to extend to you a welcome. To better our condition is our welfare and our concern, therefore we should be fully alive to every opportunity offered for advancement. It is with feelings of pride and joy that we approach the fourth centennial of that day when we will welcome the old world to witness our progress and our thrift. We have reached a time when the few can no longer control the destinies of the many; each one must push on and carve out the future for himself. The glorious sunlight of our efforts will beckon us on to success in the future. As these men have come here to teach us the result of their many years of experience, let us all join hands to bid them a hearty welcome. I want the farmer to go home from this meeting feeling that he has learned something worth remembering; that he has gained something that will give to life a keener zest. I want you, Mr. President, to teach our farmers, that there is something outside of a mortgage on a farm—that life counts for more than its trials and perplexities. Again, Mr. President, I bid you a hearty welcome, and if there is anything you need while you sojourn in our city, let us know it and we will obtain it for you.

Response by B. S. Hoxie, secretary Wisconsin State Horticultural society:

Mr. President, Ladies and Gentlemen: In my correspondence with Mr. McGillivray as to who would make the address of welcome to this society, he, after looking around, said, "I will do it." He further said he was not accustomed to public speaking and we must not expect a finished speech from him, but that he would try to do the best he could. I think he has struck the key note of success when he speaks of education, for it is education that better the condition of the people. Some seem to have the idea that our line of work is a very limited one, that it has only to do with the growing of fruit, but it includes much more. Last winter I wrote to Mr. James Currie of Milwaukee, asking him to prepare a paper for our winter meeting

on village and country cemeteries. At first he thought it was not quite the subject for a Horticultural convention, but on further deliberation, he became convinced that it was an especially appropriate one. Horticulture is not a [limited subject; when we think of all those trades-people, those people who lay out our lawns and our cemeteries, who beautify and adorn our parks that contribute so much to the health and the happiness of the people in our crowded cities who would never be able to get a view of nature, perhaps, but for them, we find the word horticulture is not so small after all for it takes them all in; in the beautiful in nature that everywhere surrounds us, our interest in the conservation of our forests and the belief that is fast gaining popular ground that all of these things are essential to the full-rounded, harmonious life, we find that the word as applied, is a broad one. It is profitable for every family that its grounds are made beautiful, it is an educator and it is the aim of this society to help along in this line for we believe that a knowledge of horticulture is an important factor of education and progress.

Excuse me for taking up so much of your time in this response to your address of welcome; we shall take up some of these questions this afternoon and evening, for discussion, and hope to make it very interesting to you, and while we do not claim to know everything in horticulture, we hope to be able to impart some new ideas. We are glad to be here with the people of Jackson county, and we thank you cordially for the hearty welcome extended to us.

The first question discussed was: "What, among strawberries, is the best variety for profit, and what the best for the farmer for home use?

Mr. Gale, of Waukesha, said: The Crescent fertilized by the Wilson for profit; the Warfield for market, but I prefer the Jessie for home use.

Prof. Goff—I have not grown the Warfield, but from observation I should agree with Mr. Gale.

Secretary Hoxie—It may be necessary to explain a little. People come to these meetings and listen to our discussions; one gives preference for one kind of a berry and another a different kind, and sometimes confusion arises in the minds of some as to what varieties are really the best when so many differences of opinion exist even among old growers, while the facts are that over our state are a variety of soils—some portions sandy, as here at Black River Falls, some a stiff clay, while others are a light loam. All these different soils produce different qualities of fruit, and that is what these discussions are for, to bring out the experience of each one with the different kind of soil he is experimenting with. Neither the Warfield nor the Crescent are perfect berries, that is are perfect in flower. The Jessie being a perfect berry will cause it to take the preference with the farmer.

Mr. Gale—The Jessie does not do well on all soils, while the Wilson and

the Warfield do. The farmer should grow his berries so that he could cultivate them in rows, with a horse.

Mr. B. F. Adams—I have grown berries twenty-eight years, have raised Wilson on clay and black, sandy soil; the largest crop I ever raised grew on sticky, clay soil. My experience is, the Wilson is the most productive for market and the Jessie the most productive of the *large* berries, and to my taste it is the *best* berry for the table.

Pres. Smith—Mr. Adams, isn't it almost impossible some years, for berries to be properly fertilized?

Mr. Adams—Yes, it is, but for a long period of time the Wilson has stood the test the best of any. Wilsons raised this year fully equal those grown a year ago. I consider the Manchester the worst berry to rust, still it is a good berry to yield.

Prof. Goff—I would like to ask Mr. Smith if he is much troubled with the Wilson rusting.

Pres. Smith—If we have a small crop and let them grow the second year they will rust, but we prefer to force the growth and then turn the bed under and raise other crops, then set again and get tremendous crops.

Mr. Gale—Do you think it is more especially true of the Wilson?

Pres. Smith—I would not advise any one following the plan of raising strawberries after strawberries, but *we* do not count on a failure at all of Wilsons. Our people who have made the program expect you will grow more than you can consume, and so they have asked Mr. Thayer of Sparta, to tell you how to pick, pack and market your fruit.

Mr. Thayer—If you will tell me how you raise your fruit, I will pick, pack and market it for you.

Mr. Thayer was then introduced to the audience and read a paper on picking.

PICKING, PACKING AND MARKETING FRUIT.

. BY M. A. THAYER, SPARTA.

The manner of picking, packing and marketing, is an important factor in growing small fruits, and it often determines the success or failure of the business.

To small growers, with a near market, it is not so important, but with large productions and long shipments it is necessary to adopt thorough business methods, and maintain strict discipline in every department.

Especially is this so in the management of pickers, working by the box. Many of them without experience or judgment, and in the hurry and scramble to get most tickets, such picking often damage the sale of fruit, several times the price of their labor. A person who will not pick fruit

clean from the vines, clean in the box without bruising and without stain or dirt, in or on the box, should be discharged at once.

If fruit growers, in the beginning, will insist on thorough, systematic work, our pickers will soon become educated to do their work well, and many dollars thus be saved.

There are various methods of keeping accounts with pickers. In ordinary plantations tickets or checks representing the number of boxes, are usually given as the berries are brought in. Others adopt the plan of a card representing 100 boxes, punching out numbers as fast as boxes are filled. On my own farm small paper checks are used. The numbers one, two and six boxes, printed thereon, and represented by different colors. These checks or tickets are numbered consecutively, and are used only once. By this method, no two tickets being numbered the same, one can easily tell at any time the number of boxes picked, and it is a protection against miscount or fraud. These tickets are bound the same as bank checks, and cost less than ten cents per thousand boxes.

Uniform prices, so far as possible, should be paid to pickers, and one thing bear in mind, large fruit can be picked at one cent per box easier than inferior fruit at one and one-half or two cents. Therefore, good varieties in good soil, well cultivated, will save you money in picking.

Packing fruit is comparatively easy, provided the picking has been well done, and the packer is himself honest. The fruit grower must be prepared to handle his fruit promptly, and know just what to do with it.

All boxes and cases must be prepared before hand and help engaged.

Boxes and cases should be well made, clean and neat, without dirt or stain.

Let your boxes be well filled and don't put poor fruit in the bottom.

Select out all imperfect, soft or green fruit and throw it away.

Always give good honest measure and a uniform quality throughout the package.

Make it a rule never to market poor fruit and your reputation in a few seasons will be worth many times the value of all poor fruit sold.

You will command the best prices and your packages be accepted without question as containing the best the market affords.

Fruit for long shipment should never be picked when wet or damp, and in hot weather should be left in cool airy places as long as possible before packing in cases.

The marketing will cause us more anxious thought than any other part of the small fruit business.

We are near no large cities and must therefore depend on long shipment for our sales.

Neither can we hope to compete with Michigan, Indiana and Illinois in the markets of Milwaukee, Chicago or cities further south. Their season is earlier and the market well supplied before our fruits commence to ripen.

We must then seek a market they cannot easily reach, and when there is little competition. That can only be found in the smaller cities of the north and west, using St. Paul and Minneapolis when there is little demand elsewhere.

Having then long shipments to make, it seems imperative that only such varieties be grown as will reach their destination in good order.

Long shipment also means excessive expense rates. We must therefore obtain low special rates from express companies or arrange for refrigerator cars, to all points we wish to reach.

This can be done if the fruit growers of the state will work together for this end. In some localities fruit associations or exchanges are formed to sell all the marketable fruit and establish uniform prices. Such an exchange is now shipping a large amount of fruit from Sparta, and most of the growers in that vicinity are making use of it.

Their plan is given in the following:

FRUIT EXCHANGE.

For the purpose of encouraging the growing of small fruits in Sparta, and assist growers in the best distribution and sale of the same, the Sparta fruit exchange will undertake to sell small fruits in the best markets, attend to all correspondence, shipments, collections and accounts, when picked, packed and delivered according to the following rules and regulations:

1. The boxes and crates must be well made, and free from stain and dirt.
2. All fruit must be picked carefully, without jam or bruise in any way.
3. The boxes must be free from leaves, stems or dirt.
4. Green, imperfect, or soft fruit must not be put in the box.
5. Fruit must not be picked when wet with dew or rain, and must not stand in the sun.
6. Notice of amount of fruit to be shipped must be given at least ten hours before shipment, and delivered at such time or place as the exchange may direct.

One cent per box will be charged for all fruit handled, but in no way will the exchange be responsible for damages, bad debts or loss.

Each member will be assigned a number for the season, which will be placed in all cases shipped. In this way each member will receive the exact net amount received for his or her particular fruit, less the one cent per box. The exchange reserves the right to decline handling berries, on the above terms, at any time; but members first applying to have their fruit sold by the exchange, will be considered first, quality of fruit being equal. We furnish boxes, cases, stencils, brushes, etc., to all who wish, at reasonable rates.

I hereby authorize M. A. Thayer, manager Sparta Fruit Exchange, to handle my berries for the year 1890, and I hereby agree to conform to all the rules and regulations therein specified.

.....

It seems to me to be important that every fruit grower should know and understand the following facts:

That choice fruit is always in demand at good prices, and if properly distributed, the market is never overstocked.

That poor fruit never sells well, always brings low prices, and the market is easily overstocked.

That it costs as much to raise poor fruit.

That it costs more to pick poor fruit.

That it costs as much to box and case poor fruit.

That freight and express charges are just as high on poor fruit, and when sold it is after good fruit is gone, and then at half the price.

This being the case, the intelligent grower will understand at once that in selecting varieties, in choosing locations, in preparing the soil, in setting the plants, in hoeing, in mulching, in trimming, and in all the details of the fruit growing business, he is performing an important part in the success or failure of picking, packing and marketing his fruit.

Mr. Thayer's remarks in connection with his paper:

I found the system this year to work very nicely; it is something after the system of bank checks, and that was what recommended it to me. *
* * You *cannot be too* particular about selecting out your fruit, especially if you live some distance from market, as is the case in this section of the state.

I have a long table made of lath and a very cool room in which they stand; here the berries are all brought to remain until they are perfectly cooled before packing for shipment.

Another point I wish to emphasize, the absolute necessity of the fruit growers uniting in perfect harmony instead of, as in some sections, trying to cut each other all up. By uniting you can make small fruit growing a success.

Some growers are growing a nice quality, and do not want to unite with those who do not take equal pains to produce a fine quality. It can be arranged very nicely by marking with a stencil every one who joins the exchange, giving each one a number by which his fruit shall be known. No. 53, a good, careful grower; No. 54, a careless one. Each one's fruit sells upon its merits. By this way nothing can be unfair, and he who exerts himself to raise good fruit is rewarded for his extra efforts.

DISCUSSION.

Prof. Goff — I would like to ask how the prices compare with those received by those who patronize the exchange, with those who do not?

Mr. Thayer.—I am happy to answer that question. While those who do not patronize the exchange get from a dollar to one dollar and a quarter, those who do, receive one dollar and a half.

Prof. Goff — How about the funds? Does the association declare a dividend?

Mr. Thayer — It is not so far advanced as to declare a dividend, but there is one person who is willing to handle the fruit for one cent per box and if there is a dividend, he knows where it goes to.

Mr. Hanchett — Suppose my number is 53, and there is a surplus and my berries go to Minneapolis and I take a low price from the commission merchant, and number 54, sells where the market is not overstocked, how about that, it would not seem hardly fair would it?

Mr. Thayer — Well, you will have to make an average of it through the season. The fruit-growers of Ripon have organized an association according to law, and I think Mr. Hamilton, who is present from Ripon, could tell us something of the way it is conducted. I do not know, however, but that he will steal all of Mr. Adams' thunder in doing so.

President Smith — The idea of Mr. Thayer, breaking down his own market, is quite an important question. If we have an overplus at home we do not put on to our market, but ship off elsewhere. I learned a lesson some time ago, incidentally, that was quite valuable to me; a gentleman was pointed out, standing in the back part of the store, as being one of the largest fruit-growers in the state; in the course of conversation I heard him say that customers never looked at Mr. Smith's produce, but always took it without, because they knew it, from long experience, to be all right. The lesson was that a man's name should be a sufficient guarantee of the quality of the stock he offers for sale. Mr. Adams, what do you think of this question?

Mr. Adams — I do not live in a section where enough is done, to say anything from experience, but I think all Mr. Thayer has said upon the subject is most excellent and practical.

Discussion closed and the audience was treated to a song by the choir.

President Smith — In my opening remarks I said something about making farmers' homes attractive, and the lady to whom you are about to listen is one of those who has made a beautiful and attractive home. I have often thought while visiting at her home, why do not all farmers have such homes? I now take pleasure in introducing to you Mrs. Huntley, of Appleton.

THE WORK OF THE HORTICULTURIST.

BY MRS. DANIEL HUNTLEY, APPLETON.

Horticulture is not only the culture of gardens, but also the culture of trees, plants, vines, and flowers. To grow all these in perfection in field, orchard, garden, lawn, and roadside, and to cultivate the fruits of the earth so well that they will constantly improve in excellence, is the work of the horticulturist; and more than this, it is also his work to so plant the trees that they will add beauty to the landscape, to so care for the flowers that they will adorn the home, and so train the vines that they will beautify any support, however rude, and whoever does this work successfully in his own humble garden, may be truthfully called a progressive horticulturist.

This work should begin in the homes, that place above all others from which should come good and beautiful things.

The fruit garden and the flower bed should receive attention as well as the vegetable garden, and tree planting should be done in its time as well as corn planting. If this work is commenced in the first years of the new home the pleasure begins at once, love for the work increases with the growth of the trees and the flowers, and the earliest memories of childhood's home will be of some choice fruit or some sweet flower.

Who does not remember a special flower or plant that was ever the delight of some dear friend? The asters that grow under our grandmother's window, the roses that our mother loved, or the pansies or the morning glories that always delighted the children.

Who can ever forget the fragrance of the lilac blooms, or the sweet syringas, or the vine covered bower, or the trees under whose shade we played in childhood?

Who can measure the influence of that little bed of white Alpine strawberries that grew years ago in the garden of our president's grandmother, he has never forgotten them nor the fruits of tree and shrub which he gathered and sold in his youth, and now after many years, an immense garden has grown under his skillful hand, and hundreds of homes have been supplied not only with fruit from that garden, but with many flowers, and also plants for that most desirable thing in every garden, a strawberry bed.

After the home grounds and garden, the road side should claim the attention of every horticulturist. Few things add more to the pleasure of any journey than traveling over beautiful roads. We all have a common interest in the highway, and we have a right to that portion of it that borders on our homes. Every land-owner should plant trees as far as his own land extends, and every child of sufficient age should assist in the planting.

It would be an easy matter to make the road side much like a garden if the people in each road district would plant trees along the highway with some of the larger shrubs among them. The wire fences, too, could be made wonderfully attractive by following the suggestion of our secretary, and planting the *Ampelopsis* (or what the late Mr. Vick called the American Ivy), at every alternate part, and training the vines to the wires, such a fence would soon become a mass of bright foliage, a thing of beauty every summer, admired and remembered by all who love nature's green and growing things.

Then if the turf along the way was covered with white clover sod and planted short distances apart with the old time lilies of different colors, with Phlox, Sweet Bracket, Buttercup and such hardy perennials, it would make a much more attractive view than the rag weed, dock and thistle that in many places cover the roadside.

Next the school house and school grounds should be adorned with trees, vines and flowers. Every parent in the district should assist in this work. A little work perfectly done would in a few years make any school ground an attractive, pleasant place. Arbor day would be a most appropriate time for doing such work. One or two enthusiastic workers could easily waken an interest; get up a picnic on that day, get the boys to bring trees to plant, the girls to bring shrubs and flowers. When all have taken dinner together there will be a most excellent opportunity to give lessons in tree planting and flower culture. If every returning arbor day was made the time for ornamenting the school grounds, in a few years they would become beautiful places, with living, growing influence for good, which would ever bring happy memories of childhood. Another field of labor for the horticulturist is the giving of seeds, and plants and flowers to those who have them not. It is surprising to see how one little plant which was the gift of some thoughtful friend, will waken a love for the beautiful in a whole household, and from that small beginning a flower garden will soon be added to that home. A few strawberry plants will induce the father to plant a strawberry bed, or the gift of a tree will lead to the planting of an orchard.

The "flower mission" and the decoration of cemeteries are an outgrowth of the work of the horticulturist. The people of the country can easily share in this work. Flowers can be sent free of cost by rail to prisons or city hospitals at any time.

Country cemeteries can be made very attractive by individual effort, if trees and flowering shrubs and perennials were planted, a few each year when we decorate our own home grounds in spring time, and thus our humble work will add some beauty to the earth.

The members of the Wisconsin State Horticultural Society have done active work in all these lines for more than thirty years. The first secretary of this society is still one of its active members. Others who have succeeded him have done excellent work while with us, and although

we have lent them to other states we still delight to call them honorary members of our society.

Another one, our lamented sister, Mrs. Lewis, passed early from life's work to her eternal reward.

Of the ex-presidents of the society two are nearly always present at our meetings, and continue to impart valuable knowledge learned by years of experience.

For fifteen years past the present presidency officer has been untiring in his efforts to elevate the work of the horticulturist, to make it successful in our homes and a safe example for others to follow.

The last twenty years the transactions of this society have been published annually, and in these volumes will be found the secret of the work of these veterans in horticulture. Many years they have met to tell of their successes and failures, of their discoveries and improvements, and as yet nearly all of the principal workers still live to meet with us in annual and semi-annual session. But the shadows are lengthening, "The silver is more than the jet on many a head that is here to-day," and as "life's latest sands are its buds of gold," so let the words of wisdom here spoken be recorded and remembered by the youthful workers, and under their skillful hands may the trees in their grandeur, the fruits in their excellence and the flowers in their beauty, grow on to perfection in all coming time.

DISCUSSION.

Secretary Hoxie—No one will differ from the sentiments presented in Mrs. Huntley's paper, and there is one question she has touched upon that we have upon our program for discussion. Is it not the duty of this society to prepare a program for Arbor Day observance in our public schools? I am in hopes the state superintendent of public instruction will co-operate with the State Horticultural society and prepare a program for our public schools in a proper observance of the day.

Mr. Thayer—I suggest that a resolution to that effect be passed at this meeting.

Mrs. Sargent, of Sparta, spoke of efforts being made in Sparta for Arbor Day observance, and its good results.

Mr. Adams—I think there was considerable attention paid throughout the state to the proclamation issued by the governor last spring for the observance of the day.

Secretary Hoxie—I think it was observed, but I want to see it more fully, more understandingly observed, so that those schools in portions of the state where too many trees exist can tell why they remove trees or why our trees should be conserved.

Prof. Goff—I think the State Horticultural society should take action in this matter and Wisconsin should take the lead. I hope a committee will be appointed to prepare a program.

Mr. Thayer—I move a committee of three be appointed to take some steps in this direction and prepare a program; it was so ordered by convention.

President Smith—Will Mrs. Huntley tell us how work has been done in her own district in this direction?

Mrs. Huntley—In our school district in Outagamie county, our school grounds comprise one acre in area. Last year we planted \$25 worth of trees; this year when Arbor day came the ladies of the district arranged to have a picnic dinner at the school house and instructed the boys to bring trees to plant and the girls to bring shrubs and flowers. On the morning of Arbor day, little boys were seen wending their way to school with trees securely wrapped about the roots with paper, and little girls with their plants noticed in like manner, in accordance with instructions previously given. These were all put away in shady places to be planted after dinner. At noon the parents came with the dinner which the children greatly enjoyed. After dinner we listened to songs and recitations which the teacher had arranged for the occasion; after the close of the program, all assisted in planting trees, lilacs, roses, lilies and a few of the hardy perennials, also bitter-sweet for an arbor, and later the American ivy. Thus the day was made pleasant for the children and a new interest awakened in the school grounds.

CO-OPERATION IN HORTICULTURE.

BY B. F. ADAMS, MADISON.

The request of our secretary to write a brief paper to be read at this meeting reached me in the midst of the splendors of June—great growth of vegetation, crops booming, weeds pushing and on my little farm I was pushing to destroy them. Forcibly impressed with the value of time at this season, and obedient to call, I readily take the hint on brevity. After many years working together in horticultural pursuits, we of Wisconsin, have learned some facts relating to its soil and climate; the first mentioned is greatly diversified and the latter subject to extremes of heat and cold, violent storms of wind and hail often accompanied with electric disturbance. Under these conditions in our efforts at fruit culture, we have learned more about varieties of trees that will not succeed here than those which do. A guiding knowledge of some value possessed perhaps by a few who may have made proper efforts to disseminate it has not generally been made available among the many to advance the interests of horticulture and many have become discouraged by repeated failures.

The establishment of experimental stations throughout the United States is a movement that is destined within a reasonable time, to produce beneficent results to our agriculture and horticulture. Those interested

in these pursuits should co-operate so far as practicable in the work they point out as feasible, for it is certainly calculated under wise and intelligent management to develop a guiding knowledge of many operations in their chosen fields of labor. Many carp at science as applied to agriculture and horticulture in the same style that some newspaper writers do of the signal service which has already benefited our marine interests, and its predictions, though not claimed to be infallible, are regarded with increasing interest throughout the country. In this brief paper I shall only allude to a few points hoping to elicit discussion. The ways and methods in which horticulturists can co-operate, are numerous, and may be generally understood by them, but communities are only brought to think on these things when devastation and destruction desolate orchards, fields and gardens. About twenty-five years ago, John Lander, then freight agent in the Northwestern depot at Madison, told me that some insects, unknown to him, were destroying his potato vines. He thought they must have been brought there on the cars, as all gardens in the vicinity of the depot were overrun with them, and he could not hear of any depredations by them in any other part of Dane county at that time. He thought they had been imported about three years, and were probably unnoticed the first season of their arrival. No means of destruction were known only to catch and kill them, and this was persistently done by the owners of the gardens and their families; the children especially, had plenty of business to occupy their leisure time, killing potato bugs. But the pests increased rapidly over the country and potatoes became scarce, and when the poison remedy (Paris green) was found to be effectual in destroying them, whole communities applied it with a few individual exceptions (it is a pretty good settlement that does not have any exceptions.)

So general has been the co-operation in waging war against this insect, that in many localities potatoes can be grown without extra trouble, but vigilance should not be relaxed for there are always enough shiftless mortals in communities to permit a pest that has once made its home in a region, to remain there permanently. They are shining examples of the saying, "misery loves company." Hence the necessity of constant, systematic and intelligent co operation in destroying insect pests. It is discouraging to do your whole duty in trying to protect your vegetables, fruits and grain fields, while your neighbor, perhaps, over the line fences, makes his premises a depot for all the destructive vermin that can gather on his land and seeding ground, for all the noxious weeds that will grow. We have laws providing for the destruction of certain weeds, but the indifference of a large number to be especially benefited by such laws prevents co-operation in securing their enforcement. In the older settled parts of the state some progress is made; looking over several farms in the township of Madison, which consists largely of land and water, I discovered only a few burdocks that had escaped destruction. Investigation and trial have demonstrated to us the efficiency of poisons applied in proper

quantities on plants, trees and shrubs. Their general use may be secured by co-operation, and the damage caused by insects greatly restricted if not entirely prevented. In marketing fruit I believe that much benefit to the growers can be gained by co-operation; in many localities all the fruit grown in a season could be marketed more profitably by one intelligent management—a directory that thoroughly understands the local supply and demand, and that knows the wants elsewhere. The quantity of some kinds of fruit, especially small fruit, that is raised and sold without any profit to inexperienced growers, is enormous. In the Chicago market it has been estimated during a single season by millions of quarts. Fruit men can certainly do this to their own advantage. By association, an interchange of views as to quantity, quality and demand for fruit in a region can be ascertained with approximate accuracy, and then traffic can be definitely shaped with reference to the knowledge acquired.

Small fruit growing is a business in which location, convenient and rapid transportation, are vitally important. All engaged in it have a mutual interest in acquiring and availing themselves of all the knowledge attainable for growing, handling and selling their products. In all that relates to horticultural development in ornamental ways, the improvement of cemeteries and other public grounds and the adorning private property we work in greater harmony and more intelligently. This society is doing a good work, but the magnitude of it is only just beginning to be realized. Our state but recently changed from a wilderness to cultivated fields is dotted with many thousands of tasteful homes. Let our influence as a society encourage everything that tends to increase the number. We can work in this line especially by trying to make popular Arbor Day. Many need no reminder, but others innocently ask what is the use of it? An example cited may furnish an answer. On a beautiful prairie in Dane county is a well kept cemetery, ornamented with trees, flowers and shrubs. In it is a plain monument erected to the memory of a farmer who co-operated with his neighbors in making this cemetery what it is. The record inscribed is simply his name, age and date of his death. On an eminence not far away overlooking the cemetery is the farm he once owned and occupied during a busy life, in which he found time to plant with his own hands more than 1,000 trees, fruit and ornamental. The evergreens now towering high are the first to attract the attention of the passing traveler, and next the orchard on the hillside. The hands that planted them have long since finished their labors, and the remnant of his family have removed to a distant state, but these shelter belts and fruit trees yet remain his living monuments in that vicinity, and will probably continue for years to protect a homestead from the rough blasts of icy winters, and the orchard, with ordinary care, to furnish choice fruit to others.

DISCUSSION.

Prof. Goff — It strikes me that Mr. Adams touched upon some very important measures. First, that of co-operation among farmers in the destruction of insects. In experimenting, in New York, by spraying for coddling moth the work was so thoroughly and so successfully conducted that it was said, if continued, the moth would soon be extinct. In Michigan the law is very strict with regard to destroying peach trees attacked with the yellows.

Mrs. Sargent — At what time do you practice spraying?

Prof. Goff — After the petals have done falling; we wait until that time out of consideration for the bees, whose harvest would otherwise be destroyed.

Sec. Hoxie — This question of co-operation among farmers for the destruction of insect pests is just like co-operation for anything else. If the farmers refuse to co-operate with the weed commissioner it will not be long before the country will be overrun with weeds. The law of self-protection would seem to be sufficient, but yet it is a fact that some farmers oppose the weed law. There are Canada thistles, enough going to seed every year near the fair ground in Milwaukee, to seed the entire state of Wisconsin. Good care must be taken of the good, the bad will take care of itself.

Mr. Thayer — I wish I could emphasize the importance of co-operation. Little idea can be formed, without having had experience, of the benefits to be derived from associations of this kind. I have taken pains, since I have been in the fruit business, to visit large markets. I was in Minneapolis before the berry season commenced in Wisconsin, and I saw seven car loads of fruit in very poor condition — fruit covered with white mold. I was in Chicago and saw thousands and thousands of bushels of fruit in an unmarketable condition. There is a necessity for co-operation to remedy this state of things, to stop this extravagant waste. Every stroke of the pendulum, as it swings back and forth, takes out ten dollars from this country to pay for fruits and nuts of other countries. We pay annually \$52,000,000 for foreign fruits. Not one person in ten on an average, has all the fruit he can use; now the question of co-operation, as suggested by Mr. Adams, will do much to remedy these two evils.

DISCUSSION

of question from programme: "How can we protect strawberries from frost at time of bloom, and can bloom be retarded so as to prolong the season in some varieties?"

Mr. Adams — If frost is very severe you can not protect them. I have never succeeded by building fires in the field, or any precaution of that kind, in protecting or preventing injury from frost. I have only succeeded

by retarding the bloom by mulching. You can also retard the ripening by retaining the mulch, taking care that it is not so heavy as to injure the vines. I once tried burning corn stalks to save my berries from frost, I lighted the fire but it did no good, the frost destroyed one third of the crop, but I harvested 2,000 or 3,000 quarts to the acre.

Prof. Goff — I gave an experiment, made by my brothers and myself, in New York, at last summer's meeting, which I will relate again. (See last Report, page 59.)

We saved the crop by covering and afterwards raking between the rows for summer mulching; about the 6th of June there was indication of a frost, three of us covered by nine o'clock, commencing at six, about two acres of berries; we left the covering on over the second night, then removed the mulch and put it between the rows, and if we saved the crop it was certainly a profitable piece of work, but how far it could be made profitable on a large scale I could not say. The U. S. Signal Service furnished instructions to protect against frost that are almost entirely reliable.

Sec. Hoxie — Is it not true that a new bed is less liable to be injured by frost than an old one? Is it not also profitable to retard the bloom?

Prof. Goff — I do not think it would be profitable.

Mr. Adams — We always mulch our strawberries as a protection in winter, and we cannot raise a crop with profit without; the mulching holds the fruit up from the ground and we have a crop of clean, nice berries for market.

Pres. Smith — We always mulch and leave mulching on as long as we can, until we think all danger of freezing nights is over.

I. C. Head — I wish to ask what is the experience of those who are more extensively engaged in raising strawberries than we are. When mulch is raked off does it not interfere with cultivation? My experience is that cultivation is of great importance.

Pres. Smith — We rake off mulching, or the bulk of it, and stack it for use another year. We have but very few dirty or sandy berries, if we have any we pick them by themselves and have cool, clean water to wash them in, we dip them in and then right out, quickly, and then put them in our cooler and they will bear shipment long distances.

We cultivate very thoroughly, keeping the weeds all out and hoeing the ground about one-half inch deep to destroy the weeds, that keeps the soil in good condition in dry weather and the plants get the benefit of capillary attraction.

Mr. Adams — My practice has been to let mulching lie on and let plants come up between, it puts the ground in a good condition and we get nice crops as a result.

Mr. Gale — My experience is much the same as that of Mr. Adams. I think, however, that the difference in experience is due to a difference in the soils where the berries are grown.

J. C. Head — I kept watch of a piece that the mulch was not removed

from and it was a long time before the strawberries came up through it, and the result was not more than ten quarts were obtained from one-half acre.

Mr. Adams — There is no trouble but that they will come up through the mulch all right; it will serve to keep the ground cool.

Mr. Gale — Can not plants be mulched too much?

Mr. Adams — Yes, I mulch enough to cover the foliage.

Mr. Adams — With the Wilson, during a term of twenty-three years, I have raised not less than five hundred quarts per acre.

Mr. Smith — My recollection is that we experimented with the Crescent.

Mr. Gale — With the soil where I live, when we hoe our berries there is a kind of a dust and when a rain comes it spatters them so they are all mud; that explains the difference in cultivation.

The secretary read the programme for the evening session. The choir rendered a choice selection: The Bugle Horn.

By vote of the convention the discussion of questions on programme was continued.

Question: When strawberries sell for eight cents per quart is it not cheaper for the average farmer to buy than to grow them?

President Smith — When you can get good berries, yes, but you cannot only for a few days and then I should say no.

Mr. Adams — A farmer by necessity of his location is not able to be in market when they are sold at that price and he had better raise them for his family.

Question: What is the longest term of years that a raspberry patch can be successfully cultivated, and should other crops be grown on the land before re-setting with plants?

Mr. Gale — Four years for blacks and six or seven for reds.

Mr. Hamilton — I think it is not well to expect to get more than six crops of black raspberries, better five, and about the same period for red. They renew their wood every year and at the same time extend their borders and if you if you retain that same ground for a longer period you weaken the possibilities for a crop.

Discussion on strawberries re-opened.

Sec. Hoxie — Last winter it was decided that strawberries could be grown for three cents per quart, now our question to-day is on eight cents per quart and we must be consistent and not send out any such discrepancies.

J. C. Head — Two years ago one of my neighbors raised and contracted his entire crop for five cents a quart, and said he made more off this crop than from his whole farm; he took in five hundred dollars.

Mrs. Sargent — One of our neighbors had a lot near Sparta, fifty by one hundred feet, from which he cleared one hundred dollars besides having all the strawberries he wanted for his own family.

Mr. Thayer — My berries average me ten or eleven cents per quart.

Mr. Adams — Under favorable conditions an immense amount of strawberries can be grown, no doubt. Farmers need to look into it or they may not be able to secure a good price for their crop. My advice is, farmers had better raise their own fruit if they only have to pay five cents per quart for it.

Mr. Douglas — No farmer can *afford* to go without fruit of his own growing however low the price he can purchase it for. I have one row of raspberries in my garden that has been growing there undisturbed for ten or twelve years, and this year it bids fair for a crop again. They are of a red variety.

Question. Mr. Hamilton, which is the best raspberry for family use, red or black?

Mr. Hamilton — I think there are so many various tastes that it is a difficult matter to decide; it is a good plan to have both kinds and then you suit all.

Mr. Hanchett — We raise on sand and clay. The Philadelphia has been in bearing a number of years. I do not cover.

Question. Which is the most profitable for market, red or black?

President Smith — I think the red.

Mr. Thayer — It depends on the market entirely; the black on Dakota market brings good prices and the red is hard to ship, from being of a less firm quality. For family use the black cap is better for canning and the berries are easier to put up. You can overstock the market with reds.

Mr. Adams — Black caps are much more productive than reds. A large number of people do not eat the reds. The blacks being more productive are consequently more profitable. There is only one kind of red raspberry that will ship long distances — the Brandywine.

Mr. Thayer — This question can be better solved by commission men; let them state what proportion of each kind received are demanded.

Mr. Hamilton — I think the proportion is about one-fifth reds and the rest blacks. The best way to ship is in pint boxes, it is the most profitable and satisfactory. Some markets, I find, want more of the reds and others more of the blacks. No other raspberry shows hardiness of plant like the Marlborough. The Cuthbert is a success with protection, although it does not yield so largely. Next to the Marlborough is the Hansell.

Adjourned until 8 p. m.

EVENING SESSION.

After a choice selection by the choir, E. S. Goff, professor of horticulture, read the following paper:

THE ADORNMENT OF HOME GROUNDS.

A love for the beauty afforded by plants appears to be one of the instincts of our nature. Seldom do we see a home outside of the tenement districts of our cities, in, or about which is not visible, some attempt at adornment in the way of trees, shrubbery or flowers. This instinct to beautify the home is often illustrated in the play-house of our children, and among older people, the lack of some efforts in this direction is one of the surest evidences of moral degradation.

But while the intrinsic beauty of trees and plants is almost universally appreciated, the knowledge of so arranging these as to produce the finest effects with a given amount of material is not universal, or even general. Indeed the conception of the arrangement of trees and shrubs with reference to other objects as a means of enhancing the beauty of the grounds seems hardly to have entered the mind of the average planter, and this conception is far too little developed even among those who lay claim to some degree of intelligence and culture.

If we were to consider the tones of a musical instrument as so many distinct sounds, without reference to their combination into melodies and tunes, by far the highest beauty of the music would be lost. The child who sees in poetry only rhythm and rhyme, loses the highest beauty of the poem. Just so, in seeking to adorn our grounds with trees and shrubs, if we ignore the principles of arrangement and combination, we shall fail in the most important part of our object.

It is not here proposed to give an abstract of the science or art of landscape gardening, but simply to call attention to a few of the more common errors in planting, with some hints as to how these errors may be avoided.

Perhaps the most common mistake in planting the home grounds arises from a too narrow conception of the objects to be attained by planting. Trees and shrubs, in the minds of many people are considered only as individual objects, without regard to their relation to their surroundings. A strikingly beautiful tree or shrub is observed on the grounds of a neighbor or elsewhere. It is at once decided that a specimen of that tree or shrub must be secured for "our" grounds, and inquiry is made as to its name, and where it may be obtained. Or oftener, and the more to be regretted, a glib-tongued nursery agent, with his bundle of gaudily colored electrotypes, displays his paper shrub or tree in full flower, and is eloquent in de-

picting its rare beauties. A specimen is ordered for the home grounds, without a thought as to where it is to be planted. By and bye the trees or shrubs arrive, and forthwith the proprietor begins to hunt about for a place in which to put his new treasure. Naturally the broadest open spaces in the lawn are first chosen. These occupied, the largest remaining spaces are next subdivided. In the course of a few years of this sort of planting, the whole grounds have been set nearly as thickly as a peach orchard. The trees being small, do not always suggest to the planter what their size will be a dozen years to come, and before he is aware of it, he has inclosed his house within a forest, in which the struggles for existence has strived out some of the high priced treasures, while the views both from the house and from the street have been effectually cut off. The objects of ornamental planting have been defeated. The grounds are neither beautiful from without nor from within, while the failure has cost more money than would have been required to create a beautiful home had the proper judgment and taste been employed.

This state of affairs, and you will bear me witness that it is not uncommon, arises from a want of knowledge of a few first principles which need only to be pointed out to be appreciated. The first object to be attained in planting the grounds is almost always to improve the appearance. Now there are two ways of improving appearances; first by the addition of beautiful objects, and second, by the removal or concealment of objects that are not in themselves beautiful. In planting trees or shrubs upon our grounds we may very often accomplish both these objects at one operation. For example, adding a beautiful evergreen increases the attractions of the lawn. By placing this evergreen where it will hide some object that is offensive to the eye, we gain two points, and have improved the appearance of our grounds in proportion. Here then is a key-note in successful planting—making what we plant subserve a double purpose. In adding a beautiful tree or shrub to the lawn, we are careful to plant it either where it will hide some unpleasing object, or else where it will tend to enhance the beauty of something that is attractive.

There are usually two principal points of outlook from which we should seek to improve the appearance of the grounds in our planting, viz.: from the street, and from the house. Surely we should not ignore the interests of those who reside continually within the dwelling. If there is any difference in the efforts expended upon these two points of outlook, it should be in favor of the views from the house, rather than from the street. But we should not neglect either.

The principles to be observed in seeking to beautify our grounds from these two points of view will be quite different, and so I will call your attention to them singly. First, then, how shall we plant to render our grounds most beautiful from the street?

No one feature adds so much to the appearance of the home grounds as a fine, neatly kept lawn. Keeping the lawn closely cut with the lawn-

mower is not so necessary to a beautiful place in the country, where the whole landscape assumes a more or less wild aspect, as in the city, where all the surroundings are highly artificial, but as a rule, the neater the lawn is kept, the more beautiful does the place appear. Surely, then, in our planting of trees and shrubs, we must not destroy the lawn. On the contrary, we must dispose them in such a way as to preserve in one or more places the greatest depth of unbroken lawn of which the grounds will admit. Looking through vistas, between groups of fine trees and shrubs, over long stretches of verdant lawn tends to give the grounds the appearance of large dimensions, as well as to suggest that they are neatly kept. Let there be one or more unobstructed vistas reaching across the entire lawn.

With reference to the appearance of the dwelling from the street, we should generally arrange our planting so as to give a view of it from two or more points that best exhibit its architectural features. If there are objects of interest beyond our own grounds, as a distant hill-top, with areas of native forest, a cluster of neat farm buildings, a church-spire rising from a group of trees, a sheet of water, or a meandering stream, we should preserve a vista across our grounds, that shall permit, as nearly as possible, an unobstructed view of this attractive object. And last, but not least, we should plant in such a way, that, as the trees develop in size, they will hide any objects in the rear, or elsewhere, that do not in themselves improve the appearance of the grounds.

How shall we plant to render the outlook from the house most beautiful?

Very few home grounds are so beautiful in themselves that the outlooks from the dwelling may not be rendered more attractive by including within the view pleasing objects from beyond the grounds. We should seek to plant in such a way that our own trees and shrubs may form part of a landscape that is not limited to the area immediately surrounding the house, but stretches far away to pleasing objects in the distance. By a wise foresight, and a carefully studied arrangement, we can provide for every room and porch of the house a landscape having beautiful and distinctive features all its own; whereas the same trees and shrubs, planted with no reference to the outlook, might effectually shut out all landscape views.

It may at first seem difficult or impossible to so arrange our plantings as to secure all of the advantages I have mentioned, *i. e.*, a fine view of the grounds and residence from the street, and at the same time beautiful outlooks from the windows and porches of the dwelling, but it is generally practicable through a carefully studied arrangement. Of course the trees and shrubs must be planted in groups of greater or less size, with open spaces between, and these groups should be so disposed that while they preserve all desirable views from the street, they at the same time extend in more or less radiating lines from the principal windows and porches.

Each of these groups should form a little study. The largest growing specimens should generally be planted at the center, with the smaller trees and the shrubs about the outside. No two groups should be just alike, and a formal or prim appearance should be carefully avoided. The location and composition of these groups will furnish delightful employment for our highest intelligence, ingenuity and taste, and while such subjects fall within the legitimate field of the landscape gardener, there is no good reason why we should not work them out for ourselves.

This much as to *how* to plant. Time forbids taking up the important question *what* to plant. The arrangement of the materials that may enter into the various groups so as to best harmonize the various shades and outlines of foliage, and the diversified characters exhibited by the different trees and shrubs requires both the taste of an artist, and a very thorough knowledge of ornamental plants. It is unnecessary to take up this part of the subject here. A few more cautionary remarks and I will conclude. First, avoid over-planting. The fact that trees are small when we plant them often induces us to plant too many. A tree or shrub can never be beautiful that has not room in which to develop its character. We should remember that the beauty of a place does not consist in the large number of its trees and shrubs. Second, avoid planting on small grounds trees that attain large size. Not that I would for a moment disparage the beauty and grandeur of a magnificent oak or elm grown to its fullest stature, but it is clear that the average lawn could accommodate but one or two such trees. We may have much more variety by employing trees of smaller size. Our leading nurserymen can furnish many beautiful species and varieties, both of evergreen and deciduous trees that never attain more than medium or small size.

Before attempting to lay out the home grounds with reference to planting, it will be well to make a plat of them on paper, locating with some care the dwelling and all other permanent features. Then with the help of some small object to represent trees and shrubs, we can work over the question at our leisure time, as a wise general plans a battle. By performing this work ourselves, we shall reap a kind of pleasure that is unknown to those who secure it all by paid professional skill. The work of the amateur, imperfect though it may be, usually yields to him a higher and more lasting comfort than the paid accomplishments of the ablest artist. Surely, we can work from no higher motive than the desire to beautify the home, nor can we achieve this in any other way so well as through a wise selection and disposition of the same instruments that our Creator employs in the embellishment of His own landscapes — His own beautiful trees and shrubs.

DISCUSSION.

Mr. Thayer — I have neither criticism nor suggestion to make on that paper, I think it is just about right.

From a gentleman present — A friend of mine built a house but did not take the subject of landscape gardening into consideration; he built a \$3,000 house and built it eight feet from the walk, of course it did not look well. I built a house, putting it well back from the street and grouped the trees on the lawn. I built a thousand dollar cottage, and there are, no doubt, gentlemen here to-night who will say that the \$1,000 cottage looks better, so far as beauty goes, than the \$3,000 mansion.

The choir sang a welcome song.

A FEW WORDS FOR WOMEN.

BY MRS. CARRIE S. HOBART, BLACK RIVER FALLS.

I have been called upon to take part in this meeting, owing probably, to the fact that I have a one-third interest in a fruit farm, consisting of twenty-five raspberry, twenty blackberry plants and a five by ten strawberry bed, over the plants of which timothy clover and weeds cast a delightful shade. Counting the birds of the air and the fowls of the hen-coop, I can not state positively what my proportion of the crop is.

Last season my share was about twenty-five small blackberries, one pint of small raspberries and about three dozen small strawberries. Counting the three dozen small strawberries as filling two one-quart boxes, the pint of raspberries filling a quart box, and the twenty-five blackberries two quart boxes, they were worth about sixty-three cents to me. This year I expect the value to be doubled, at least. What is your question? What kind of soil do we have? It's a rich, red sandy soil. What variety of blackberry yields such a crop? The unknown variety, sir. Will I state what kind of raspberries I have a one-third interest in? Certainly; the unknown. Will I tell what strawberry is so well adapted to our rich red sand? It's the same variety, gentlemen, as the blackberry and raspberry that we grow. It is the variety farmers generally grow. I want to add right here, that since we have been raising fruit, we have utilized chips, our rich, red sand is altogether too well adapted to horse sorrel, which was in a fair way to choke out the briars, but throwing chip dirt about the roots has quite choked the sorrel out. Our neighbors supply us with the spring luxury, smoke. We may conclude to use chips on the strawberry bed as sorrel has a start in that. But that will be an experiment for future trial. I believe these gentlemen desire and expect to say something in regard to fruit raising, so I will not exhaust the subject, but speak my few words for women and have done.

Women are to-day claiming more attention from the public than ever before. Scarcely a newspaper but has its "woman's kingdom," or a magazine but devotes more or less space to woman's cause, or a farm journal but gives much attention to household affairs. Then, too, papers and magazines are published, entirely devoted to the promotion of the best interests of women.

Farmers' institutes and conventions of this nature are working wonders in arousing farmers to the need of a broader education, as well as the need of a special preparation for their work. Much is being done for the elevation of the farmer. Perhaps I am in the wrong, but it seems to me there is too little time given to the discussion of the headquarters of the farm, at these meetings. Incidentally, men are kindly admonished to provide wife with suitable conveniences for the home, and not to selfishly buy every piece of machinery that comes along, to save himself work, while she must go along in the same hard old way her grandmother did.

I wish it were as much a part of the programme to hammer away at men who provide insufficient help and labor-saving appliances for the house, as it is to discuss questions pertaining to the farm proper.

It may not be practicable, but I wish it were, to have some farmer's wife or daughter, who is keenly alive to all the needs of her sisters, at all of these meetings, to give them words of advice and encouragement, and to work to interest every gentleman in their cause.

We hear of women as successful merchants, lawyers, doctors, paper-hangers, inventors, journalists, preachers and farmers. In fact many new lines of work are being taken up by them, in which they are proving quite as successful as the generality of men in the same lines. What does this mean? That women of to-day are different from women of the past? That she is less womanly than of old? No. Women of to-day possess the same womanly qualities that her sex did ages ago — but the aims and ambitions of the modern progressive woman are not the same that used to be common to womankind. Then, too, of old, a woman looked to a father, a brother or to a husband, especially to a husband, whom it was her first and greatest aim to secure, for the fulfilment of all her ambitions, to be woe-fully disappointed, many a time. To-day she is more self-reliant; and what great need of self-reliance have many.

Women were not led to change their condition because of any pleasure in it, but have been gradually brought to their present status by necessity. Improvident fathers, brothers and husbands; husbands, brothers and fathers worse than improvident — sickness and death, have made it obligatory on scores and scores of women to support themselves and dependents upon them. She has from necessity come in contact with the world, and has found herself illy prepared — who is not provided with an armor, an armor of practical education — a trade — a knowledge of things of which it has been deemed necessary for only men to know. Woman has become gradually conscious that her condition is not quite what it ought to be, and

has set about devising ways for its improvement. That she should be successful in working out her salvation is not wonderful. Many of you, gentlemen, know women who can make a pair of pants, and a vest for little Willie, out of one pair of his father's old pants, and make the scraps and linings left go a long way toward rugs and carpets. And you know, too, of women who make over, turn upside down, inside out, a dress a half a dozen times, and still appear neatly appareled in it. Such women must be capable of accomplishing much in any line to which she turns her attention.

In the report of this Society for '89, we may read a practical paper on fruit growing, written by a woman who so manages a fruit farm, that a member of this Society, a successful berry grower himself, says she can raise berries cheaper than he can.

There are many women successfully managing farms, and, no doubt, there are unsuccessful lady managers as well, who have a large company of brothers, who ought to know well how to sympathize with them. I fear, though, that some of these same brother-failures straighten themselves up, whenever they hear of a woman as business failure, and with a wise nod of the head say, woman fashion, "I told you so." These brothers have always known that women have no knack for managing help; that they don't know and never *will* know anything about money matters or markets, or, well in fact they always knew women were fitted by nature for household duties, only. Some of these same dear brothers who have no money themselves can't manage help themselves, who know nothing of business methods and have not found their own sphere yet, form with many of their successful brothers, quite a class whose opinions of woman's capabilities are not very exalted. There is another class who rate woman's abilities very high, and would protect the fair sex from the toils and strife of the world, especially from those of politics.

If these men would bestow a little more careful thought on the subject they could not but see that their intended kindness is oftentimes cruelty. The wheels of fortune, all know, may leave women without protectors, a single turn of the wheel may *oblige* her to face all the ills of the world, from which men would save her. Will anyone call that kindness, which does not best prepare us for emergencies it may be ours to meet to-morrow! We need not be pessimistic, but as men plan for a rainy day during the pleasant weather, so ought we to provide for such contingencies.

Every father and mother alive to the best interests of their son, strive to give him an education that will make him self-supporting, and in a measure independent of them. I would have every parent train his daughter with the same end in view. True, she may marry, girls sometimes do, but will her education be all loss. Will she not be all the better prepared to be a help meet, and will she not be happier in the security she feels in knowing that whatever comes, she is not helpless?

Life on the farm ought not to suggest the drudgery, the isolation, the loneliness, the narrowness it does. Everywhere we find women living under these conditions, but it is conceded by all that farmer's wives have less advantages than their urbane sisters. That these conditions are unalterable no one is slow to deny, but the movements that will in time alter the aspect of affairs are more slow in gaining in the country than elsewhere. In the majority of cases this unpleasant state of affairs is not brought about through neglect as much as through the thoughtlessness of men and women. A great share of the blame can be justly laid upon woman. So it follows that she must look much to herself for any improvement of her condition. She must be made to see that the established order which makes it possible for the farm to have all modern improvements and the home none should be overthrown. Then she should lead James out of the darkness. Perhaps James will not be led into very strong light, but any way she can teach her boys and girls along this line.

To avoid the monotony and narrowness farm life is so apt to foster, women ought to establish charitable or literary societies in every community. There ought to be held housekeeper's conventions all over the land.

Teachers, engineers, doctors, journalists, and in fact men of every vocation hold such conventions for an interchange of experiences. Why should not women hope to be benefited by like gatherings. "O! but you can never agree," says a chorus of bass voices. "You can never agree. It isn't natural for women to." "You'll be fighting the first thing." If we do rival our brothers in this matter of disagreement, which I much doubt, even the least sanguine of women may confidently hope that a few centuries of training in societies and clubs, will enable them to attain as high a degree of perfection as our representatives in congress have displayed the past year.

I would have women interest themselves more in current events—in political and religious reforms. If all women would spend as much time reading as their husbands do, there would ten years after marriage be fewer husbands twenty years in advance of their wives in mental development.

I am sure that however indifferent a woman may be to these matters now, there is not one but whose indifference would be changed to a lively interest would she but subscribe for and read a paper, devoted to her interests exclusively, for six months. I have often heard it remarked, and I know from experience, that school children when asked to look up a point in history or an item pertaining to events of the times, in fact if asked most any question, will say: "Oh, I'll ask father—he'll know it's seldom—mother'll know." The full measure of woman's influence in the home will never be attained unless the conditions that make it possible for children to unconsciously make such distinctions shall have been done away with. Many a mother would be doing much more for her children's

good if she tucked and ruffled less for them, and read and thought more. Sometimes I am tempted to wish the old lines:

"All that you do, do with your might;

Things done by halves are never done right,"

had never reached some women's ears. If they can no other way find time for self-improvement, they would display better judgment, to my mind, by doing some of their work by halves or thirds.

There are women who spend enough time in a month, crocheting lace, to read a number of good volumes, whose cry is, "I never have time to read!" Perhaps some of these same poor women scrub and dig unpainted floors and shelves, when the money spent to buy the thread for their lace work would be nearly sufficient to procure paint, which if applied, would save more than half their strength and much of their time. These women are few and are only rivaled in good sense by the few men who will keep themselves provided with tobacco even though their wives are not provided with a decent six cent calico dress.

Considering the few generations of women who have been at all countenanced in choosing any sphere, other than that of the household, they have made rapid progress. We have some wonderful women, and had we not been kept back by customs and prejudices, we might to-day boast of as many great women as men, for the theory that the minds of men and women are essentially different is very thoroughly exploded. The number is fast decreasing who adhere to this old idea, and those who do, might well take for their emblem the owl, and their motto, "We sleep all the days of our life." George Parsons Lathrop, in the *North American Review* for May, says that "more than a little of the fiction produced by women now-a-days, if published anonymously, might fairly pass as the work of men." I have been of the opinion myself, that women were more liable to prejudice than men, that their minds were naturally weaker. As I grow older, however, men are themselves teaching me that these theories are false. Perhaps they do not mean to teach, but they do so, more effectively, for this very reason.

A specimen of prejudice I met with a few years ago displayed by one of the sterner sex, quite disabused me of the idea that women had a monopoly of this undesirable quality. It so happened that in course of conversation with me, a gentleman stated that he had lived in a state where woman suffrage prevailed, and that he was convinced that by his experiences there that it was a good thing. But, said he, I—I am not quite convinced that its just the right thing." As soon as I recovered from the shock his logic produced I managed to ask him if he acknowledged that nothing more or less than prejudice made him doubt the expediency of a measure he knew to be expedient. "Yes, that's about the amount of it," was his reply. I told him if that were the case some good woman ought to have his right of franchise, and a gentleman who had heard the remarks was of my opinion, too. Were I not timid, I would defy any one to find a

woman who has a disposition any better or as well fitted for prejudice than had this man, a man of education — a teacher of people — a minister of the gospel. A few days ago an assembly of ministers of a church denomination, the membership of which is largely composed of women, on whose patronage they depend for the greater part of their salaries and whose church societies are largely dependent upon women, ministers who gladly allow women to go to all parts of the world as missionaries refused to enroll a church composed wholly of women, rather than to allow them to qualify as elders or deaconesses.

I beg you, ladies, never to despair of exercising as good sense as this, or lose hope that you may sometime be given credit for having quite as broad minds as have these enlightened gentlemen of the 19th century — gentlemen who, no doubt, denounced in strong terms, the action of the Russian-Americans who, a couple of weeks ago, in a South Dakota town, prevented a lady from addressing a public meeting.

When every woman believes that her duty to her family, and through it to the world, can not be best performed with her a drudge, ways and means will, with little difficulty, be devised to save her from such drudgery. I am sure that more thought and judgment exercised by both men and women, on this subject would save many a woman from the unpleasant life she now leads and the lifting up of women would mean a better and a higher civilization, for it would insure a speedy approach to an ideal home, from which the young would go forth with more healthy views and broader minds. And better than all, it would save a majority of our women from misery, such as the poor woman must have suffered who left for her epitaph the following lines:

“Here lies a poor woman who was always tired,
 Who lived in a house where help was not hired.
 Her last words on earth were, dear friends, I am going
 Where washing ain't done, nor sweeping nor sewing,
 But everything there, is exact to my wishes,
 For where they don't eat, there's no washing of dishes,
 I'll be where fond anthems will always be ringing,
 But having no voice, I'll be clear of the singing;
 Don't mourn for me now, don't mourn for me ever,
 I'm going to do nothing forever and ever.

FLOWERS FOR THE HOME.

BY MRS. ELLA SARGENT, SPARTA.

Mr. President, Ladies and Gentlemen—I will tell you a little of my experience in raising flowers, hoping that it may help some new beginner. I dearly love the work and hope to influence you to take it up and love it too. We have been hearing all about fruit culture, and it has interested us greatly, but all cannot raise fruit, but all can have flowers either inside or outside of the home. I am somewhat inclined to the Japanese idea, who cultivate fruit trees for their blossoms rather than their fruit. Some of them are certainly very beautiful in flower. A blackberry is much more beautiful in flower than fruit to my mind.

I will be as brief as possible, however, and only mention plants that you all can raise in almost any garden or home. First we will talk of roses, for they are our choicest flowers. Since the advent of "Hybrid Perpetuals," which are perfectly hardy, and "Hybrid Teas," which with a little care will live out over winter, we may have a succession of bloom until frost. The soil must be very rich. A mixture of rotted sod, barnyard compost, a sprinkling of coal ashes, and all made very mellow. You can plant either in fall or spring with success. If in fall, the latter part of October is most desirable. If worms attack the foliage use hellebore the same as for currant worm. Keep all faded flowers cut off, in fact cut them before.

When each branch is done blossoming cut back six or eight inches, when the new wood will spring up, and bud and blossom, and in this way you can keep them in blossom all summer.

The first part of November prepare for winter protection. Take a warm, sunny day, when the frost is out of the wood, so it will not be brittle, pile leaves or dirt close to the roots of the bush on the side you wish to bend it, lean the branches over carefully on the pile to avoid breaking the wood near the roots. Have ready some stakes a foot or eighteen inches long connected by a strong cord, long enough to reach across the branches. Drive the stakes firmly in the ground and leave them until quite settled cold weather, then cover with leaves or straw and place boards on to hold the covering in place. If small bushes, you need not use the cord, but drive the stakes crosswise. You will prefer this kind of covering to burying in earth, when once you have tried it. In the spring uncover and trim back at least one-third, and fork in some rich compost. Treat climbers in the same way. Every one ought to have "Lilies of the Valley," "Forget-me-nots," "English Daisies," and the little double "English Violet," all of which blossom in the spring and need the same care, an eastern exposure, good garden soil and plenty of moisture. A bunch of white "Colum-

bine" will blossom abundantly with little care, and is beautiful. Pansies with their dear little faces, are our most constant friends, blooming from early spring til cold weather, if only cared for.

Florists tell us old plants are not satisfactory, but I have had a bed of plants four years old loaded with blossoms. I have my bed very rich and moist, if new plants are wanted I sow seed in the fall in time to have the plant well up before time for covering. In midsummer I cut the old plants close to the ground and let them spring up new, they will blossom well the rest of the season. I cover lightly with leaves or straw, and leave covering on until settled weather in spring. Verbenas are beautiful, but require a little more care in starting. I sow seed in tin cans or pans in leaf mold with sand sprinkled on top, and then cover with oiled paper (such as florists use), and set under a warm stove. When up I remove to a sunny window and am careful not to water too freely, as too much moisture will rot them.

I transplant about the middle of May. They revel in rotted chip dirt. Give Nasturtiums moist rich soil, and they will do well. Plant "Sweet Peas" when you plant garden peas. Make soil rich and dig a trench six inches deep, plant and cover about an inch. When plants are well up draw the earth around them little by little until the bed is level. This treatment makes them strong and stocky.

There are many other garden flowers I would like to mention, but can not, as I wish to talk a little while about "House Plants." Geraniums for winter blooming should be started in May or June in good garden soil, mixed with leaf mold. Pinching them now and then will make them bushy and good form. If kept too moist will grow to foliage.

□ Fuchias should be potted in fall and in very rich earth, and set in the cellar until March, then brought to the light and trimmed back well. They will require more pot room, more water, and less sunshine than Geraniums.

East windows are good for Geraniums. Carnations will bloom well in a sunny window with a temperature of sixty degrees. Mix a few coal ashes with the soil in which they are potted which should be light and rich. start slips under glass and when rooted, pot and keep well pinched back. Tea roses require the same treatment and temperature as Carnations; sprinkle often to keep down the red spider. Do not water until dry on top, and then plentifully. "Calla Lilies" and "Heliotropes" require plenty of pot room, rich soil and abundance of moisture, high temperature and sunshine. Begonias thrive in a moist, warm atmosphere, with little or no sun. The following varieties will do well in east windows: The "King Lily," a member of the Amaryllis family, is a beautiful plant of easy culture. Pot in fall in rich, light soil, and put in the cellar until February, then bring to the light, giving plenty of heat and water, and a little sunshine, and it will soon send up a flower stalk, on which three, four and sometimes five large scarlet lilies will form, and as the bulb grows older will sometimes blossom two or three times a year. Let it rest

the latter part of summer. Place the bulb two-thirds out of the ground when potting. Ivy Geraniums do well in cool rooms with very little sunshine.

In potting plants use plenty of drainage, broken brick, coal cinder, or packing moss will do.

There are many more desirable plants, but I have only mentioned a few that can be kept in any home without bay window or conservatory. Now don't say you haven't time for this work. Take time! do less inside and more outside; help nature and she will help you, and you will be very much benefited. You cannot help thinking when you look at your beautiful flowers, whose Hand made them all, and that they were created for a great mission. Do not withhold time, or money for this work, for I firmly believe there is a better influence in this labor than in any other.

“ Oh, prophet flowers! with tips of bloom
 Outvying in your beauty
 The pearly tints of ocean shells--
 Ye teach me life and duty;
 'Walk life's dark ways,' ye seem to say
 'With loves divine for knowing,'
 That where man sees but withered leaves,
 God sees sweet flowers growing.”

Music by the choir: All Hail.

Adjourned until 9:30 A. M., June 27.

9:30 A. M., JUNE 27, 1890.

Opened with music.

Vice-president Thayer presiding.

Mr. Thayer — I regret, exceedingly, that President Smith is obliged to be absent from this day's sessions. We will now take up the question for discussion, Can blackberries be successfully grown without stakes and wires?

J. Matson, Melrose — I think they can. I have one variety that are successfully grown without stakes and wires. I do not think there can be enough more berries raised to pay the difference in expense. Wires and stakes are in the way of mulching. Trim in the fall, trim from 18 inches to two feet and they will sustain themselves.

Q.— What kind have you?

Mr. Matson — I have the Briton. About two dozen plants; those not mulched, killed out.

Mr. Hamilton — I say it pays to wire blackberries, and I will give my reasons. One acre planted about seven feet apart will require 400 pounds of wire at four and one-half cents per pound, costing \$18.00; set the stakes twenty feet apart and cross tie at the stakes. Wire forms a protection for plants and not only keeps the fruit up from the ground, but prevents the risk of loss of plants and fruit by storms. Tying each bush up lessens the shade and therefore damages the fruit. This is not for one year only; I

have wire that has been in use twenty years that is good yet. The loss of one root in a two or three year old patch is worth about fifty cents to you. If we did not have high winds it would not be so necessary to wire. A man came to me and asked my advice, and I told him to wire; he figured up the cost and thought it would cost him about thirty dollars per acre for wire, stakes, etc., and he could not afford it. The consequences were, he lost about half his crop. It only takes a few hills to be spoiled to pay for the entire wire for a crop.

Mr. Ring — What does this wire weigh?

Mr. Hamilton — One pound for forty feet. I get No. 12 wire. Buy wire and give your plants protection by laying them down for winter if you wish for success. I would protect from wind, by wire, in garden or field.

Mr. Gale — Do you cross-tie?

Mr. Hamilton — Yes, but not every hill. It looks very nice to do so, but it is not so nice after all. If plants are allowed to droop some you will get nicer fruit. You will find larger and finer berries if plants are allowed to droop and cover fruit. We must give our fruit protection from the sun as well as the wind.

Mr. Linton, Black River Falls — My experience is they must be supported, if not, in fruiting season the fruit drops and I lose one-half of it.

Q. — How can you lay down so as to avoid breaking canes and not lose one-half the plant?

Mr. Linton — Lay down the canes at one year old, remove a little soil on the north side, but not enough to disturb the crown, press with your foot so as to bend the plants. In gathering the limbs together many break them in letting them spring back, but you must not let go those limbs; put a little soil on the plant to hold it down, lay the next plant on it, and so on until you have finished the row. Nip back and a rank new growth of laterals takes place. I do not advise checking any, save upright growth, because on the end of the laterals you will find the best fruit; by trimming you may get larger samples, but you will not get enough fruit to pay for your trouble.

Mr. Holmes, Waupaca — I do not think they can be successfully grown without stakes and wires. I have watched and studied Mr. Hamilton's experiments. I tried it at Waupaca without wires, and had my berries blown down in the sand and all ruined. I then bought wire at \$3.25 per hundred weight for nearly an acre, and it did not cost more than ten dollars for wire and posts. I used cedar posts.

Mr. Adams — I have grown blackberries for market for eleven years and have never driven a stake nor put up a wire in all that period of time and I have grown some large crops of blackberries. Last year I had an especially large crop that stood up the year round all right. I raised 6,000 boxes per acre of blackberries. So I think this question can be answered, by thorough cultivation they can be successfully grown without

wire. Laying them down did not work well with me, the canes snapped like pipe stems. I never lay down blackberries. I have a clay soil.

Mr. Hamilton — Haven't you lost some crops?

Mr. Adams — Some years we have had light crops but I do not think the difference would have paid for the trouble in putting down.

Mr. Thayer — My experience is that it does not pay to grow blackberries without wire. I lost more fruit last year, by winds, than would have paid for the wire and stakes. Mr. Hamilton puts prices too high. I bought wire for \$3.75. It is a little higher this year than last.

Sec. Hoxie — The question of support depends largely upon the nature of the soil for its solution. If you have stiff, clay soil the plants stand firmer than in a loose soil like that at Sparta or Green Bay.

Mr. Adams — That is the point I was about to make, you must take the soil into consideration.

Mr. Holmes — Mr. Williams says he shall try the experiment of pruning back to two feet and then use wire.

REPORT OF COMMITTEE ON FRUIT EXHIBIT.

To the President and Members of the Wisconsin State Horticultural Society: Your committee to whom was referred the competitive fruit exhibit, offer the following report:

For best collection of strawberries — 1st premium, I. Gale & Son, Waukesha; 2d, George Hanchet & Son, Sparta.

Best quart Warfield — 1st, M. A. Thayer, Sparta; 2d, George Hanchet & Son, Sparta.

Best quart Lida — 1st, George J. Kellogg, Janesville.

Best quart Wilson — 1st, I. Gale & Son, Waukesha; 2d, George Hanchet & Son, Sparta.

Best quart Crescent — I. Gale & Son, Waukesha; 2d, George Hanchet & Son, Sparta.

Best quart Jessie — 1st, I. Gale & Son; 2d, George J. Kellogg.

Best quart May King — 1st, I. Gale & Son; 2d, George Hanchet & Son.

Best quart Mt. Vernon — 1st, George J. Kellogg.

Best quart Manchester — 1st, I. Gale & Son; 2d, George J. Kellogg.

Best quart Haverland — 1st, George J. Kellogg. 2d, George Hanchet & Son.

Best quart market berry, quality to rule, "Jessie" — 1st, I. Gale & Son; 2d, George J. Kellogg.

Special Premium of Fifty Cents on Single Plate Varieties.

Best quart Eureka, George J. Kellogg. Janesville.

Best quart Pearl, I. Gale & Son, Waukesha.

Best quart Cloud, I. Gale & Son.

We find worthy of honorable mention, twelve boxes of strawberries, by M. A. Thayer of Sparta, eight of Warfield and four of Jessie, also a similar exhibit by N. Lake & Sons, of Black River Falls, consisting of five boxes of Jewel and Bubach.

We also notice a fine plate of Belmont, one of Monmouth and also a promising seedling strawberry by I. Gale & Son of Waukesha. A fine plate of Crescent by Walter Olsen, two plates Crescent by John Duxberry, and one plate Crescents by Mr. Clark.

Seedling Apples were shown by Fred Harden, Weyauwega, and I. Gale & Son, Waukesha.

All of which is respectfully submitted.

B. F. ADAMS,
E. S. GOFF,
Committee.

REPORT OF COMMITTEE ON PLANTS AND FLOWERS.

Mr. President, your committee make the following awards:

For best display of house plants, J. C. Head, Black River Falls, first premium.....	\$3 00
Mrs. Price, second premium.....	1 50
Best collection of fuschias, J. C. Head, Black River Falls, first premium.....	1 50
Mrs. Marsh, Black River Falls, second.....	1 00
Best collection geraniums in bloom, J. C. Head, Black River Falls, first premium.....	1 50
Mrs. Gibhart, Black River Falls, second.....	1 00
Best display of begonias, Mrs. J. P. Crosby, Black River Falls.....	1 00
Best show mixed flowers, Mrs. Duxbery, first premium.....	2 00
Mrs. Jones, second.....	1 00
Best show of roses, not less than ten varieties, Mrs. M. A. Thayer, Sparta, first premium.....	1 50
J. C. Head, Black River Falls, second.....	1 00

Respectfully submitted,

MRS. C. H. HAMILTON,
MRS. ELLA SARGENT,
C. H. HAMILTON.

DISCUSSION.

On question from programme: "Does it pay to manure heavily for all small fruit, if so, what is the limit?"

Prof. Goff — In my experience with black raspberries, I have found that it does not pay to manure too heavily. I had a plantation on my father's premises near the barn yard that was not satisfactory after the first year. While a neighbor on high ground, who did not manure, had good crops for a succession of years.

Mr. Adams and Prof. Goff agreed that strawberries will take heavy manure.

Mr. Adams — I put on forty or fifty loads of manure per acre.

Q.— Do you put on ashes to any extent?

A.— Yes, wood ashes if I can get them.

Mr. Gale — I think the Wilson will stand almost any amount of manure, while there are some varieties that will not. I can get manure too heavy for Crescents.

Mr. Hamilton — I think with raspberries, the Marlborough will stand almost any amount. Blackberries, I consider as a hard working team, the more I give them, the better pay I get, I put on thirty-five loads per acre.

Q.— Prof. Goff — Do you ever use coal ashes?

Prof. Goff — Yes, but only for mulching, not for a fertilizer. I do not consider them as possessing any fertilizing qualities.

CAN GRAPES BE SUCCESSFULLY RAISED FOR MARKET OR HOME USE AS FAR NORTH AS BLACK RIVER FALLS?

By A. I. GALE, WAUKESHA.

I answer yes, providing one select a proper location, early varieties, good cultivation and protection in winter. The grape will do well on almost any soil, providing it is well enriched and well underdrained. A southern or southeastern slope is preferable. Plant vines 8 by 8 feet or 8 by 10 feet, using either stakes or trellis for a support, as one may wish. We prefer stakes, as we can cultivate both ways, saving much hard hoeing, which is expensive. Use strong one year vines, as they are easier handled and will make nearly as good a growth as two year. Dig holes large enough to take in all of the roots, spread out naturally and deep enough for the cutting and about two or three inches of the new wood. This is where many fail, viz.: in not planting deep enough. After planting cut back to two buds and allow but one cane to grow the first season, and in November cut that back to three buds and cover with straw and earth. The next year allow

4—H.

two canes to grow and if they make a good growth cut one back to four buds and the other to three or four feet to bear and cover as before. As the vine gets age, leave more canes, cutting out old wood and leaving new strong canes, where possible. Cultivate thoroughly every season but do not plow deep. Do not be afraid to use fertilizers in your vineyard and by no means severely check or summer prune your vines. Now, in regard to varieties. We are growing nearly 100 varieties at our place and have fruited over forty varieties, but should not want to recommend but few for vineyard planting. Champion is the earliest black, but too poor in quality. Telegraph follows closely — a showy cluster of fair quality, and should be planted more. Early Victor is hardy and productive but too small for market. Moore's Early is the one good early black grape for market or home use, and will ripen when others fail. Worden is a good black grape for home use but is thin skinned and cracks easily. Concord is good. Of red grapes Brighton takes the lead. Delaware and Wyoming Red are good. If you want Rogers' Hybrids, Nos. 9 and 3 are by far the best with us. White grapes are not profitable for market. Lady and Duchess do best at our place.

In closing will say to all, plant more grapes. Plant them around your buildings, in your gardens and in your fields, and enjoy an abundance of one of the best of all fruits. You may think me visionary, but the time is coming when Wisconsin will take a foremost place among the grape growing states of the Union.

A. I. Gale — Waukesha. I have written a short paper and have left points open for questions to be asked.

J. C. Head — I had a grape vine that bore and ripened fruit splendidly, so that I was encouraged to send for more vines to plant out. I sold a good many to my neighbors, the next year I lost my fruit by frost, and by the next year the courage began to ooze out at my fingers.

Q.— What kind of soil and what kind of protection did you give them?

J. C. Head — I think that is an important consideration. My soil is very sandy. I protected in the fall and took up my vines before they started in the spring. My experience is, if they are taken up after they have started I have lost all the fruit for that year, but if I take up before, they do better.

Q.— Mr. Gale, does taking up the vines late in the spring retard the growth?

Mr. Gale — I find those taken up early, blossom ten days earlier than those taken up late. I did not uncover until the first of June.

Mr. Adams — Grapes are easily raised in the southern part of the state, and I do not know why they cannot be here.

Q.— Do not buds start sooner if started under ground in sandy soil?

Mr. Adams — I have had no experience, but in strawberries, we retard the ripening by keeping covered as long as we can.

Mr. Gale — We cover our berries with straw. Along one edge we covered much heavier than the rest, and the strawberries thus covered were retarded in ripening; covering with soil, starts them much earlier than if covered with straw, because straw holds frost.

APPLE CULTURE.

BY A. W. PRINDLE, MERRILLAN.

My paper is represented in a few words, and if any one has any questions to ask after hearing it, I will be glad to answer them to the best of my ability.

It may be truly said that the apple is the king of fruits, but with all its superiority it must harmonize with the soil and climate. While there has been many failures, its successes have been enough to warrant a careful investigation into those failures.

Location.— The best location is high, rolling land, with only a medium cultivation, as an excessive flow of sap is almost sure to cause blight in a tree.

Russian Apples.— Although St. Petersburg is in 60 degrees north latitude, yet the climate is more like the Pacific slope than it would be north of us in this state. No matter where the apple originated, whether in Russia, Minnesota, Wisconsin or in any other place, it can only grow and do well on such properties as the soil and climate can furnish. To illustrate, a Transcendant crab grown in northern Wisconsin is a better apple than when grown 500 miles south of here, showing that each variety has its natural adaptation to soil and climate.

DISCUSSION.

Prof. Goff — What varieties have you fruited?

Mr. Prindle — Several different varieties; those I have grown the most successfully have been the Transcendant. One of the causes of failure in apple culture is because people have taken the idea that the apple is perfect, this is wrong. Nature is never in a perfect state. That is why so many people get discouraged, and it is just as sensible for a farmer to say that he will not raise any more horses because some have died as for our horticulturists to say they will not try to grow any more apples because some of the trees have died. There is a great deal said now-a-days about the hardness of Russian fruits, and agents are going about the countr

selling Russian trees by telling people they are perfectly hardy and will not winter kill. The idea of an apple from Russia being more hardy because from there, is all a humbug.

E. Ring — Supposing the farmer had gone on raising horses for years and ninety-five out of every one hundred had died, would he be justifiable in continuing in that line of business? Now ninety per cent. of the money invested in apples has resulted in failure.

Prof. Goff — The question came up one year ago, Is apple growing a failure? and it was reported a success.

Mr. Hunter — What kind would you recommend? I have tried apple growing and it has been a failure. The Duchess of Oldenburg, one of the so-called hardy kinds, rotted off like a cabbage.

Mr. Prindle — Suppose the trees do die and have to be replaced every eight years? I have Transcendent and Hyslop that have been bearing over ten years. Put out fifty trees, that is enough for a farmer, and if a few do die out, set in more. If they bear eight years it will pay. It only takes time and patience to raise apples.

Question from program — How can we protect our currants from the ravages of the borer?

Prof. Goff — That is a hard question to answer; one way is to cut out all of the infested cane and burn it. I do not know how to prevent the borer from laying its eggs on the stalk.

Q. — How can you tell when it is affected?

Prof. Goff — By its appearance; the leaves will look shriveled, and on bending the stalk it will break.

Mr. Holmes — I have a patch of blackberries, and that stimulated people around me to go to raising them. While I could not awaken people through my newspaper (I am an editor) I succeeded in awakening them when they saw my berries. We supplied twenty families with nice berries, and all of them wanted some roots to put out for themselves, so that we got fifteen or sixteen acres planted out, and this spring fifteen acres more were set. I tell you it is a blackberry cordial right through and in the "original package," too. I can write a great deal better editorial after eating a quart of berries. Now, my friend Thayer raises berries for fun, and I like those fellows who go into it for fun — it means something.

Music by the choir.

Adjourned until 2 p. m.

Opened with music.

Question for discussion from program.

Subject: Strawberries. Which is preferable, matted rows or the entire ground?

Mr. Thayer — Matted rows, because it saves labor and time, and for the greater facility with which they can be picked. If I was going to raise

strawberries for some special purpose, premiums, etc., I would prefer hills, but for profit I would plant in rows, six inches apart in row, and rows three and one-half feet apart. I cut off the vigorous runners. This is a very clean way, and I get more fruit. I cultivate once or twice in the spring, then put on straw for mulch. The pickers can work very nicely, and the berries are clean.

Q.—How long do you continue your bed?

Mr. Thayer — One year and then turn under is the best if you have an immense crop the first year.

Q.—Do you set in the spring?

Mr. Thayer — I set in the spring always. If you have a favorable August set then, but I would not advise fall setting. I visited River Falls, where a grower cultivates cheaper than I do; he sets five feet apart, and takes rye straw, chopped fine, for mulching.

Sec. Hoxie — What is the soil at River Falls?

A.—A sandy loam.

Mr. Thayer — Location and soil make all the difference in the world and that fact explains all the seeming discrepancies.

Sec. Hoxie — That is why I asked Mr. Thayer to answer the question, because it does make a difference where fruit is grown, what kind of a treatment you must give it.

Mr. Spaulding — Is it possible to have a good crop of berries from plants set in August?

A.—It is possible and probable. Set one foot apart in rows and rows two feet apart — that is for the farmer's home use. Mr. Gale, what would you do?

Mr. Gale — Well, I do not know. One firm in Ohio raises for market in that way and then plows up after the first bearing.

Mr. Perriam — July and August settings are all right for family use; you get the fruit the first year in hill culture, and the next year in matted rows, fruit for canning, etc., with some nice berries for the table.

Question for discussion on blackberries: Which is preferable, deep or shallow cultivation, and how near the time of fruiting shall cultivation be continued?

Mr. Thayer — I say shallow cultivation is better, because it retains the moisture longer in the ground. I cultivate with a tobacco cultivator. Blackberry roots are very near the surface of the ground and deep cultivation breaks the roots and up comes another plant. Cultivate early and late, six, eight or ten times, especially in dry seasons. If cultivated too late in the fall canes do not mature sufficiently to stand frosts.

Q.—When is the best time to remove the old canes? Will it pay to remove?

Mr. Holmes — Remove in the fall. It will not pay to not take them out, I do not know why unless it is because there is strength that goes to that old stub that we ought to have in the new stock.

Sec. Hoxie — I think we remove, firstly, because some one else did before us. Secondly, it looks neater to see the old canes cut out. The question on the utility should be considered. I know that some growers leave them in until the next spring, when they can be broke down and help form a mulch.

Prof. Goff thinks old canes draw nourishment from the soil and evaporate it, thus drawing from the growing stalks in this way.

Sec. Hoxie differs from Prof. Goff because it is a law of nature that when anything becomes useless it decays and falls away; for this same reason foresters advocate letting the dead limbs remain.

Mr. Holmes — For blackberries and raspberries if I left them I would cut them out and leave them on the ground. I would vote that it did not pay to not remove.

Mr. Thayer, the same opinion.

Mr. Gale — If you were not going to cover would you take out the old canes in the fall or spring, or leave them to hold the snow, thereby forming a protection? Have you ever found a worm in the old canes?

Prof. Goff — There is a blackberry and a raspberry borer.

Mr. Holmes spoke of a fungus growth on blackberries. Mr. Thayer also found some on his plantation.

Prof. Goff — Is the fungus growth you speak of, of a yellowish color?

Mr. Thayer — No; it has a warty appearance. I found it on low grounds where water runs off slowly. Mr. Hamilton thinks it was caused by bruising the canes in taking up and putting down.

Q.— Is there a profitable demand for black currants?

Mr. Hirschinger answers by letter: English people as a rule are good customers.

Mr. Perriam says in Chicago market there is no demand for them except for conserves.

Mr. Hamilton — I grow them and find a demand for them that makes them a profitable crop. I set them six by three feet. One hundred plants yielded 112 boxes, which sold for \$13.50. At the same rate per acre 2,400 plants would yield a value of \$325.

REPORT OF SUPERINTENDENT OF TRIAL STATIONS.

BY PROF. E. S. GOFF.

To the President and Members of the Wisconsin State Horticultural Society — Doubtless all the members of this society are aware that as one means of promoting the culture of fruit in Wisconsin, a resolution was adopted at our last winter meeting, recommending the establishment of trial stations in various parts of our state, and a committee was appointed to take charge of this work. A report of progress from this undertaking will naturally be desired at this time, and I have therefore prepared a statement of our transactions thus far.

The committee, which consisted of President Smith, Secretary Hoxie and Mr. B. F. Adams, in conjunction with Professors Henry and Goff, of the Experiment Station, held a meeting at Prof. Henry's office, early in March, at which it was decided to establish two trial stations the present season, to act in conjunction with the Experiment Station at Madison, and it was later decided to add a third. It was then understood that one of these would be located on the farm of Mr. A. L. Hatch, at Ithaca, one on that of Mr. M. A. Thayer, of Sparta, and the third on that of Mr. William A. Springer, of Weyauwega, though as will be mentioned later a change was made in the location of the last.

The committee received solicitations to establish stations at other places, but it seemed unwise to undertake a larger number, in the present condition of the society's finances.

On the 16th of April, Mr. Hoxie and myself visited Weyauwega, for the purpose of selecting a suitable piece of ground for a trial station. For a variety of reasons a plat was selected on the farm of Mr. F. A. Harden, instead of that of Mr. Springer, as had been previously decided. The day following we reached Sparta, and on the morning of April 18, selected a suitable plat for our work on the farm of Mr. M. A. Thayer. The day following I visited Mr. Hatch's place at Ithaca, and made a similar selection there. Each of these parties entered into a contract with the society, leasing a given amount of land for the term of five years or longer, at the society's option, for certain considerations, and agree to keep such land protected from the depredations of animals, and to cultivate and care for the trees or plants growing thereon, as directed by the society.

Early in April a circular letter was sent to the nurserymen and other persons interested in the improvement of fruits in our own and adjoining states, asking for suggestions as to what it would be well to plant, and where and on what terms we could secure the stock. From the replies to these questions a list was made up, which was ordered. Unfortunately we were unable to secure trees of the entire list. Several had not yet been sufficiently propagated for distribution, and of others the supply had already been exhausted. A long list of Russian fruits ordered of Prof. Budd failed for the latter reason. But with all our slips we have made a respectable beginning.

It was our plan to have the same list of varieties planted on all of the stations, but I find on comparing the lists planted, the varieties do not correspond very well. The discrepancies arose chiefly through the negligence of some of our donors to send their proffered trees to all of the stations, as it was understood that they were to do. The whole list of varieties planted is as follows, though as just remarked, all of them are not found on each of the different stations.

Apples—Arabian, Baraboo, Barloff, Bell Pippin, Berlin, Borsdorf, Crockier, Duchess, Duchess No. 2, Fameuse, Forest, Glass Green, Gold Drop, Hartshorn, Hebbelwhite, Hoadley, Jenney, Johnson's Seedling, Kesha, Lewis, Lewish Blush, Long Arcade, Longfield, Manning's Blush,

Manning's Red, Mary, Mathews' Fall, Mathews' Russett, McMahan White, Morris, Newells Winter, Nobles, Northwestern Greening, Palmer, Patten's Greening, Raspberry, Repka Malenka, Sarah, Scott's Winter, Switzer Sweet, Transparent, Wallbridge, Walworth Pippin, Whitney's No. 20, Windsor Chief, Wisconsin Spy, Wolf River, Yellow Transparent, Zolotoref, Seedlings from Duchess Nos. 2, 3 and 4, an autumn seedling from Mr. Gale and three other unnamed seedlings.

Pear—Besseminka, Idaho, Sapouganke.

Plumb—Mariana, Rockford, Wild Goose, seedlings from Mr. Gale.

Raspberry—Acme, Ida, American Everbearing, Hilborn, Lovett's Black, Muskingum, Palmer, Progress, Winona.

Strawberry—Crawford, Edgar Queen, Eureka, Great Pacific, Shuster's Gem, Thompson's Nos. 1, 5, 7, 8, 9, 11, 12, 25 and 26, Tippecanoe, Viola, Yale.

Blackberry—Freed, Gaynor, Thompson's Early Mammoth, Japan Wineberry.

In the following table the varieties planted in each of the several stations are given, with the names of the parties from whom the trees or plants were obtained:

Varieties planted in the spring of 1890, at the trial stations of the Wisconsin State Horticultural Society.

Ithaca.	Sparta.	Weyauwega.	Madison.	From whom obtained.
APPLE.				
.....	Arabian	Arabian .....	.....	A. Clark Tuttle.*
Baraboo.....	Baraboo.....	Baraboo.....	Baraboo.....	Chas. Hirschinger.*
.....	Barloff.....	Barloff .....	.....	A. Clark Tuttle.*
Bell Pippin...	Bell Pippin]..	Bell Pippin.....*	Bell Pippin.....	Chas. Hirschinger.*
.....	.....	.....	Berlin	Clark Hewitt.*
.....	.....	Crocker	Crocker	Wm. A. Springer.*
Duchess.....	Duchess.....	Duchess	Duchess	Chas. Hirschinger.*
.....	.....	Duchess No. 2 ..	Duchess No. 2 ..	Wm. A. Springer.*
Fameuse.....	Fameuse.....	Fameuse .....	.....	J. V. Colta.*
Forest.....	.....	.....	Forest	F. K. Phoenix.*
.....	.....	Glass Green ..	.....	A. Clark Tuttle.*
.....	.....	Gold Drop.....	.....	A. D. Barnes.*
.....	.....	Good Peasant ..	.....	C. G. Patten.*
.....	.....	Hartshorn.....	Hartshorn.....	Clark Hewitt.*
.....	.....	Hebblewhite ..	Hebblewhite ..	Wm. A. Springer.*
Hoadley.....	.....	.....	Hoadley	F. K. Phoenix.*
.....	.....	Jenney	Jenney	Wm. A. Springer.*
.....	.....	Johnson's Seedling .....	.....	A. D. Barnes.*
Kesha	Kesha.....	Kesha	Kesha	I. Gale & Son.*
.....	.....	.....	Lewis.....	Wm. A. Springer.*

Varieties planted — Continued.

Ithaca.	Sparta.	Weyauwega.	Madison.	From whom obtained.
APPLES.				
.....	.....	.....	Lewis Blush	W. A. Springer.*
.....	Long Arcade.	Long Arcade. ....	.....	A. C. Tuttle.*
.....	Longfield.....	Longfield.....	.....	A. C. Tuttle.*
.....	.....	Manning's Blush..	Manning's Blush..	W. A. Springer.*
.....	.....	.....	Manning's Red....	W. A. Springer.*
.....	.....	Mary.....	Mary.....	W. A. Springer.*
.....	.....	Matthew's Fall ..	.....	Clark Hewitt.*
.....	.....	Matthew's Russet.	.....	Clark Hewitt.*
McMahan	.....	.....	.....	.....
White..	McMahon	McMahan White..	McMahan White..	Chas. Hirschinger.*
.....	White..	Morris	Morris	W. A. Springer.*
Newell's	.....	.....	.....	.....
Winter..	Newell's	Newell's Winter..	Newell's Winter..	C. Hirschinger.*
.....	Winter..	Nobles .....	.....	Nobles.*
N. W. Green-	.....	.....	.....	.....
ing.	N. W. Green-	N. W. Greening ..	N. W. Greening ..	A. D. Barnes.*
.....	ing..	Palmer.....	Palmer	C. Hirschinger.*
Palmer.....	Palmer..	Patten's Greening	.....	C. G. Patten.*
.....	.....	Raspberry .....	.....	A. C. Tuttle.*
.....	Repka	Repka Malurka..	.....	A. C. Tuttle.*
.....	Malurka..	.....	Sarah.....	Clark Hewitt.*
Scott's Winter.	Scott's Winter	Scott's Winter....	.....	C. Hirschinger.*
.....	.....	.....	Switzer Sweet....	Clark Hewitt.*
.....	Transparent..	Transparent.....	.....	A. Clark Tuttle.*
.....	.....	.....	Walbridge.....	C. Hirschinger.
Walworth .....	.....	.....	Walworth	F. K. Phoenix.*
Wealthy.....	Wealthy.....	Wealthy	Wealthy.....	C. Hirschinger.*
.....	.....	Whitney's No. 20.	.....	A. D. Barnes.*
Windsor Chief.	Windsor Chief	Windsor Chief....	Windsor Chief....	.....
.....	.....	Wisconsin Spy...	.....	A. D. Barnes.*
.....	.....	Wolf River.....	.....	Wm. A. Springer.*
Yellow Trans-	.....	.....	.....	.....
parent.....	Yellow Trans-	Yellow Transpar-	.....	C. Hirschinger.*
.....	parent.....	ent .....	.....	A. Clark Tuttle.*
.....	Zolotoref	Zolotoref .....	.....	.....

Varieties planted—Continued.

Ithaca.	Sparta.	Weyauwega.	Madison.	From whom obtained.
APPLES.				
.....	.....	Seedling — Duchess, No. 4..	.....	Wm. A. Springer.*
.....	.....	Duchess, No. 4..	.....	C. G. Patten.*
.....	.....	Duchess, No. 6..	.....	C. G. Patten.*
.....	.....	Wolf River.....	.....	Wm. A. Springer.*
.....	.....	Hybrid.....	.....	A. D. Barnes.*
.....	.....	Unnamed.....	.....	A. D. Barnes.*
.....	.....	Unnamed.....	.....	Wm. Masters.*
.....	.....	.....	Autumn Seedling.	I. Gale & Son.*
PEAR.				
Bessemlanka.....	.....	.....	.....	A. L. Hatch.*
.....	Idaho.....	Idaho.....	.....	Storrs Harrison Co.
Saponganke.....	.....	.....	.....	A. L. Hatch.*
PLUM.				
.....	.....	Mariana.....	.....	A. D. Barnes.*
.....	.....	Rockford.....	.....	C. G. Patten.*
.....	.....	Wild Goose.....	.....	A. D. Barnes.*
Seedling.....	.....	Seedling.....	Seedling.....	I. Gale & Son
RASPBERRY.				
.....	.....	.....	Acme.....	F. R. Palmer & Son *
Ada.....	Ada.....	Ada.....	.....	T. J. Longnecker
Am. Everbear- ing.....	Am. Everbear- ing.....	Am. Everbearing.....	.....	Cleveland Nursery Co.
.....	.....	.....	Hilborn.....	J. M. Edwards & Sons.*
.....	.....	.....	Lovett's Black....	J. T. Lovett Co.*
Muskingum....	Muskingum..	Muskingum.....	Muskingum.....	Cleveland Nursery Co.
Palmer.....	Palmer.....	Palmer.....	.....	Cleveland Nursery Co.
Progress.....	Progress.....	Progress.....	.....	J. T. Lovett Co.
Winona.....	Winona.....	Winona.....	.....	W. N. Scuff.

Varieties planted—Continued.

Ithaca.	Sparta.	Weyauwega.	Madison.	From whom obtained.
BLACKBERRY.				
.....	Freed.....	.....	.....
.....	Gainor.....	.....	.....
Thompson's Early Mammoth.....	Thompson's Early Mammoth.....	Thompson's Early Mammoth.....	Thompson's Early Mammoth.....	Cleveland Nursery Co.
.....	Japan Wine- berry.....	.....	.....	J. Lewis Childs.
STRAWBERRY.				
Crawford.....	Crawford.....	Crawford.....	.....	M. Crawford.
.....	.....	.....	Edgar Queen.....	B. O. Curtis.*
Eureka.....	Eureka.....	Eureka.....	.....	Cleveland Nursery Co.
Great Pacific..	Great Pacific.	Great Pacific.....	.....	Cleveland Nursery Co.
.....	.....	.....	Schuster's Gem..	J. T. Lovett & Co.*
Thompson's No. 1.....	.....	.....	.....	Cleveland Nursery Co.*
Thompson's No. 5.....	Thompson's No. 5.....	Thompson's No. 5.....	.....	" "
.....	.....	Thompson's No. 7.....	.....	" "
Thompson's No. 8.....	Thompson's No. 8.....	Thompson's No. 8.....	.....	" "
Thompson's No. 9.....	Thompson's No. 9.....	Thompson's No. 9.....	.....	" "
.....	.....	Thompson's No. 11.....	.....	" "
Thompson's No. 12.....	.....	.....	.....	" "
.....	Thompson's No. 25.....	.....	.....	" "
.....	Thompson's No. 26.....	.....	.....	" "
Tippecanoe.....	Tippecanoe.....	Tippecanoe.....	.....	J. H. Haynes.
Viola.....	Viola.....	Viola.....	.....	Cleveland Nursery Co.
Yale.....	Yale.....	Yale.....	.....	" "

* Those marked with a star were gifts to the society.

It is proper to acknowledge our indebtedness to several donors, as follows: Messrs. A. Clark Tuttle and Charles Hirschinger, of Baraboo; Mr. William A. Springer, of Fremont; Mr. Clark Hewit, of Waupun; Mr. F. K. Phoenix, of Delavan; Mr. A. D. Barnes, of Waupaca; Messrs. I. Gale & Son, of Waukesha; Messrs. J. M. Edwards & Son, of Fort Atkinson; Mr. A. L. Hatch, of Ithaca, and Mr. William Masters and Mr. Nobles, of Weyauwega;—all of these from our own state. Outside of our state I am pleased to add Mr. J. V. Cotta, of Nursery, Ill; Mr. C. G. Patten, of Charles City, Ia., and the Cleveland Nursery company, of Lakewood, O. But for the assistance generously furnished us by these gentlemen we should have been unable to have made so fair a beginning. Aid was also offered us by others, whom we did not find it necessary to call upon for contributions.

In addition to the work already outlined, a commencement has been made at our Station at Madison, in collecting cions of promising varieties of apples and plums, of which trees are not yet for sale, or are difficult to procure, and in propagating trees from these for use in our trial stations. Fifteen seedling apples and the same number of seedlings of native plums, of believed to be of high promise, have already been secured, and more or less of root grafts are now growing of them all, though as few cions of a sort were usually, the number of grafts is in many cases very small. Most of these seedlings have been top-grafted upon old trees as a means of hastening their bearing.

A quantity of seedling apples from named hardy varieties is also growing, all of the more promising of which it is proposed to reserve for bearing, and about a peck of the pits of native plums has also been planted.

In conclusion, I desire to further solicit the assistance of members in securing promising new seedlings or named varieties for trial, whether in the form of cions, buds, suckers, trees or plants. I shall at all times be pleased to receive suggestions as to varieties that are worthy of trial at our stations, with information as to where they may be procured.

It is greatly to be hoped that an appropriation may be secured from our next legislature, which will make it possible for us to establish more trial stations, as well as to better equip those that we already have.

Question asked: What is a black bug that works on currants?

Prof. Goff—It is the currant Aphis and the remedy is kerosene emulsion.

Prof. Goff emphasized the fact that we need more trial stations but the want of funds prevents us in this work.

Mr. Perriam was introduced to the audience and responded in the following manner:

Mr. President, Ladies and Gentlemen—I always like to attend the Wisconsin Horticultural conventions because the meetings are always lively,

and Wisconsin takes the lead in these matters. One principal thing I want to talk to you about is that we in Chicago think of nothing more than the World's Fair. We have feared they would fill up Lake Michigan to make ground to hold it on but they can't fill up more than 250 acres so it seems that they will use Jackson Park; we can get 1,000 acres there if necessary. We cannot hold a fair unless the Agricultural, Horticultural and Live Stock interests are paramount. California wants forty acres, Texas wants twelve.

It would not be out of place for the Illinois Horticultural Society to invite a delegate meeting from all parts of the United States to confer about the preliminary work. The Illinois Dairy Association has issued a call to meet at the Sherman House, July 28, in behalf of the dairy interests. It will take lots of time and preliminary preparation to arrange for this great show.

One reason I like to meet with the Wisconsin State Horticultural society is because you organize a new society wherever you hold your summer meetings, and in this respect you are much ahead of my own state, where we haven't local societies generally, and you will soon get so that horticulture will not be an experiment with you but a scientific fact. We have, in Illinois, three societies, and from these are formed what is called a state executive board.

I thank you for your kind attention, and will not take your time further.

Sec. Hoxie—These remarks by Mr. Perriam are what we want to bring before this meeting, that is the arranging of preliminary work for the coming World's Fair. I do not know as we can appoint a committee here to-day, but I think it would be perfectly appropriate for the Illinois society to issue the call for a conference of the several state societies.

I have been talking up the matter of a local society here at Black River Falls, and Mr. McGillivray feels doubtful about it on account of the attendance being small from the country.

(Benefits of local society were fully explained by officers of state society.)

On suggestion of Mrs. Campbell, Mr. Thayer called for an expression of those present relative to an organization. A large number expressed themselves in favor of organizing, and, on motion of Mrs. Campbell, the state society adjourned for fifteen minutes to allow Black River Falls people to organize a local society, which they did with about fifty members.

Convention called to order, and Mr. Holmes gave an interesting and spicy short speech about his grub patch and berry growing, and read a short paper on Horticultural Picnics.

OUR HORTICULTURAL PICNICS.

By W. N. HOLMES, WAUPACA.

Friends of Horticulture—I thought I would say a few words about our basket picnics, trusting that others may catch the inspiration and do likewise.

We have three horticultural societies in Waupaca county. All have adopted the plan of holding basket picnics at various places during the year. Our first meeting in the season is known as the "Strawberry Picnic." We select for our meeting place a pleasant grove not far, of course, from some well cultivated field of strawberries, where can be seen the different varieties in all stages of growth: blossom, green or ripe fruit according to variety, the size of fruit, color of foliage, etc. Here also can be learned the system of cultivation of our brother horticulturist, which we, too, may find it well to adopt. The fruits of the season are the special topics of discussion and study, and the object lesson is before us at each seasonable picnic. Each society holds as many as four, and sometimes six, during the year, designated as "strawberry," "raspberry," "blackberry," "apple and grape" picnic, with one or two winter gatherings to test the *canned fruits*. Our summer meetings are held near town, where we can treat and entertain our village or city cousins (who by the way are generally the best samplers).

In the winter we make it a point to meet at some thrifty farmer's home some distance out into the country, so we can again treat our "cousins" to a good old-fashioned straw sleigh-ride. It is needless to say these rides are enjoyable. In the summer season we carry our baskets well filled with choice edibles, fruits, pots of cream, flowers, etc. Long tables are arranged under the shade. The victuals are promiscuously distributed, so that everybody gets a taste of a bill of fare prepared by our sister members that would do honor to "Delmonico." In the winter our baskets have, in addition to viands, apples, nuts, etc. At all our gatherings we have a program of music, special topics, etc.

We find these occasions excellent incentives for stimulating a taste for horticultural pursuits; besides, they are social and moral educators. Since the establishment of our society and the holding of these social gatherings, many, who heretofore had hardly given attention to vegetables, except, perhaps, the famous "Waupaca potato," are this year regaling themselves upon small fruits from their own gardens.

Now friends, if you are not already a member of some horticultural society, you should become one at once. Every city, village and township should have an organization. Every county in Wisconsin should have a society auxiliary to the state. Agitation and organization will work wonders in horticulture as well as in any other line of action. Our estimable

president or secretary of the state society, will be glad to assist in organizing a society at any time or place where desired. Through these societies, horticulture and floriculture are fostered and encouraged. They are also excellent mediums for the cultivating and prolonging acquaintances and friendship.

KEEPING QUALITIES OF STRAWBERRIES.

A committee appointed by the chair to examine the different varieties of strawberries on exhibition in the hall in the afternoon of the second day (June 27th) of the summer meeting of the Wisconsin Horticultural Society, and report upon their comparative keeping qualities, submitted the following:

To the President and Members of the Wisconsin State Horticultural Society: Your committee have carefully examined the different varieties of strawberries on exhibition, and have rated their present state of preservation as nearly as possible on the scale of one hundred. The berries were, for the most part, picked early in the day on the 25th and have been transported by rail from Waukesha to Black River Falls, a distance of about one hundred and seventy-five miles. Since their arrival here they have been exposed to the atmosphere of the hall. The temperature since these berries were picked has been unusually high, probably not below 90° in the shade during the daytime.

Their present condition appears about as follows:

Parry, 90; May King, 85; Ontario, 80; Warfield, 75; Jessie, 70; Mammoth, 68; Bubach, 65; Manchester, 63; Welch, 63; Wilson and Lady Rusk, 60; Crescent, 58; Windsor Chief, 55; Captain Jack, 53; Haverland and Gandy, 50; Glendale, 40; Bomba, 30; Pearl, 25; Cloud, 10.

should be emphasized that the rating of the keeping qualities of the different varieties here given represents their comparative ability to endure a protracted high temperature rather than a protracted journey by rail. Had they been examined immediately upon their arrival in Black River Falls, or had they been transported continuously during the past three days and nights, their order might have been very materially changed.

A. I. GALE,
E. S. GOFF,
Committee.

The following resolutions were presented and adopted:

Resolved, That the ladies who have read papers are hereby declared honorary members for one year.

Resolved, That all those who have furnished flowers and plants for decorating, be accorded our heartfelt thanks.

Resolved, That the hearty thanks are due, and are hereby tendered to the citizens of Black River Falls, and J. J. McGillivray in particular, for the cordial reception and hospitable manner in which we have been entertained during our sojourn here, and to the singers who have added so much to the interest of our program.

Resolved, That the secretary of this society be instructed to confer with the superintendent of public instruction with the view of enlisting his interest in the matter of promoting the objects of Arbor day; also to issue circulars to the members of this society, the officers and teachers of our public schools and to all other interested persons, inviting cooperation in the observance of Arbor day in such manner as will best promote the improvement and adornment of the school grounds within our state.

M. A. THAYER,
B. S. HOXIE,
E. S. GOFF.

Adopted June 26, 1890.

J. J. McGillivray offered the following, which was adopted by a rising vote:

Resolved, That we tender the State Horticultural Society a unanimous vote of thanks for holding their summer meeting in our county, and for the many and useful lessons we have been taught during these sessions.

Discussion of questions on programme resumed.

What is the best reliable early grape? Moore's Early. No dissent.

Is the De Soto plum proving satisfactory? So far as grown.

Are currants profitable as a special crop?

Mr. Thayer — I am growing about four acres, but have not been growing them long enough to make a report as to profit.

What is the best quality of soil for small fruit growing?

Mr. Thayer prefers a light sandy soil.

Mr. Gale — A clay loam, from such a soil you will have finer fruit one year with another. The soil has much to do with quality and flavor of fruit.

Can bee-keeping and fruit growing be successfully combined without neglect in either branch of industry?

Mr. Thayer — There is no question but that bees are necessary to successful fruit growing and if there were no bees in my vicinity I would get some.

Music.

Convention adjourned *sine die*.

B. S. HOXIE,
Secretary.

TRANSACTIONS OF THE 21ST ANNUAL MEETING
OF THE
Wisconsin State Horticultural Society

Held in Madison, February 2-6, 1891.

MONDAY EVENING, FEBRUARY 2.

Convention called to order by Pres. J. M. Smith. Secretary Hoxie called for the report of the ad-interim committee. Werden Reynolds, Green Bay, gave his report, prefacing it by saying: "I used the circular letter sent out by the secretary, and answered his questions in making my report."

Report of Warren Gray, Darlington, was read by the secretary.

A. L. Hatch—We are now on the eve of our great Columbian exhibit and we shall have an agent here to take our statistics. Fruit growing in our section, I will say it is not very general.

There has appeared an invader in our midst; a little insect called the black-banded leaf curler, and we are interested to know what can be done with the little fellow, and how he gets rolled up in such a way in the leaf that we cannot get at him.

With regard to spraying for fungus growth you will have reports from Prof. Goff, and I will not attempt to give you the facts in my report. A fungus that we failed to remedy last season was one that affected our berries. We had a variety of fungus, in our section, that affected wild varieties of blackberries that did not affect the cultivated varieties. We have also a red rust that largely affects some varieties.

Owing to the lateness of the season, and the wet weather, we did not get ahead of the coddling moth. There is not much of a prospect ahead for a fruit crop next season.

G. J. Kellogg — I want to ask Mr. Hatch how many apples he raised last year?

A. L. Hatch — About one thousand, or fifteen hundred bushels.

Secretary — There seems to be a little misapprehension with regard to the report of this ad-interim committee. I did not desire to have these reports.

come in as reports have been given heretofore, but instead, I wished for a general report of horticulture in the several localities of our state; we may not be able to get it properly this year but we shall, I hope, in the future.

J. M. Smith — Gentlemen, there are several committees to be appointed by the chair. The fruit growers, who have fruit on exhibition, have usually selected their committee and I think they had better do so now. If they fail to agree the chair can appoint.

I will appoint as committee on Resolutions, J. C. Plumb, of Milton, R. J. Coe, of Ft. Atkinson and A. I. Gale, of Waukesha.

Committee on Revision of Fruit List: A. J. Phillips, of West Salem, R. J. Coe, Ft. Atkinson and C. H. Hamilton, of Ripon.

J. M. Smith — As the meeting this evening is for the purpose of general discussion, we are at liberty to take up anything we may think of interest.

I understand that Mr. Hatch says three-fourths of his crop was destroyed by insects, will he please state the truthfulness of the report, and if so, what was the cause?

A. L. Hatch — I am not going to grumble about what I did not get. I have not brought my orchard up to as high a state of cultivation as I ought to. I had all I was entitled to but probably would have more fruit if it had not been for fungus and insects.

J. C. Plumb — I am glad to find a man who thinks he has got all he was entitled to; I know a great many who do not think so. We had very peculiar weather last spring, there was not a single leaf formed for about two weeks, owing to certain climatic conditions, and up to the tenth of June we had nine days of rainy weather and from the tenth to the fourteenth, we had extreme heat, and of course those climate conditions produced fungus. I saw a man from Nebraska who said they had the extreme heat that burned up their corn, but did not have the extreme moisture, and they had a good apple crop. So you see the conditions of extreme wet and extreme cold weather produced the fungus growth.

Prof. Goff — In New York they did not have extreme heat, but instead, they had cool weather and they had almost an entire failure of their apple crop; the year before they had extremely wet weather.

J. C. Plumb — I saw a magnificent show of apples, from the Baraboo river country, exhibited by a young man who said they had never had a failure of the apple crop in that section.

J. M. Edwards — I would like to ask Mr. Hatch if his apple orchard lays the same as his brother's?

Answer — My orchard slopes to the southeast.

A. G. Tuttle — I had a light crop, except on some varieties. My principal crop is now the Duchess, and last year I had but a light crop; I lay it to the fact that there were very few blossoms on the trees. I never look for a crop when I do not get any blossoms.

Chas. Hirschinger — I am situated a little differently from Mr. Hatch, who said some people never get all they want. I had this year, plenty of blossoms and plenty of fruit. I said to Mr. Hoxie, that I was going to raise more apples last year than Mr. Hatch, I did intend to, but they were not quite big enough. My orchard is on a northeast slope. After those hot winds came last summer, I was almost discouraged and thought I was not going to get any fruit. The apples dropped so fast that I did not like to look at them.

J. M. Smith — How many apples did you raise?

Chas. Hirschinger — I picked twelve hundred bushels.

J. C. Plumb — Wisconsin has got the name of being second among the states in apple growing. I would like to ask if it was a favorable season for apple growing in Brown county this year?

J. M. Smith — We did not call it a favorable year for apples this year. There is a fine orchard in Oconto county that has borne so well that the gentleman who owns it is going to put his entire farm into an apple orchard as fast as he can.

Mr. Phoenix — This matter of stem or top working on the crab is very new — it is novel — and it is largely experimental. Although I am very hopeful, I am not able to say that it is out of the experimental stage, and although hopeful, I cannot recommend it, yet I hope Mr. Cotta's experiments will result favorably. Now I want to say one word about this matter of Russians; I think this is something that we need to consider, for they are full of leaves, they are hardy, and if the fruit was a failure, I would have some hopes to go at them and graft them and get something satisfactory from them. I want something hardier than the old sorts, considering the severe winters we have had. The Russians have the true basis, the hardy stem and the dense foliage, and I would rather take them than the half hardy old varieties.

Secretary — As Mr. Cotta's name has been called up I will say that I have a letter from him in which he gives a list of twenty varieties of trees all grafted on Whiting's No. 20.

A. G. Tuttle — I do not believe there is a single tree left that I have grafted on the yellow crab.

J. M. Smith — I think, as it is getting late, the committee on program had better report.

M. A. Thayer, chairman of the committee on program, reported the following for morning session:

Best soil for small fruits. Preparation of soil. Varieties — for families; for commercial; for shipment. Preparation of plants. Setting. Cultivation and mulching. Pruning. Picking and marketing. Winter protection.

Secretary — Before making out the premium list I wrote to different members saying that we expected a small show owing to small crops, and I endeavored to make out a premium list accordingly. Perhaps I have

not made one that is satisfactory. There are two exhibitors here who have a very fine and large exhibit that is not on the premium list, and therefore it may be necessary to give some discretionary premiums.

On motion, convention adjourned until 9 A. M. Tuesday.

HORTICULTURAL ROOM,

TUESDAY Morning, February 3d.

President Smith in the chair.

A short time was spent in listening to reports of ad-interim committees.

T. T. Lyon, of South Haven, Mich., representing the Division of Pomology, United States Department of Agriculture, was then introduced, who briefly but comprehensively stated the object of his visit to us as an agent from that department. The secretary of agriculture for the Division of Pomology wishes for the harmony and co-operation of all horticultural societies, and in all ways hopes by this co-operation in work to develop more fully the great horticultural interests of this nation. The department to this end hopes to be in close communication and sympathy with each society, and by the collection and dissemination of facts by published bulletins from time to time, bring all parts of our republic to a better understanding of its capabilities and a higher appreciation of its possibilities.

Mr. Hatch — I would like to ask Mr. Lyon if it is the intention to send these bulletins to every member of the society.

T. J. Lyon — This is a matter that is to be conferred over between the society and its members as soon as communication can be established between societies; they will be sent when necessary, and where they can do the most good.

J. C. Plumb — Mr. Lyon comes to us as a representative of the Pomological department, and he has presented a practical question to us, if it is the intent of his remarks we ought to appoint a committee to confer with him on the subject.

J. M. Smith — We have a committee on Resolutions which we will refer the matter to.

G. J. Kellogg — I wish to present the report of committee on appointing a superintendent for the Department of Horticulture at the next state fair; we recommend that J. M. Smith be appointed to that position.

Chas. Hirschinger — Mr. President; I move that we elect our superintendent by ballot, and thus give every man an opportunity of expressing his preference.

Motion carried. A short discussion was held about the propriety of electing some one who was a member of the executive board of the agricultural society; the question was finally decided that it was not imperative that we conform to this rule.

A. J. Phillips — I am in favor of the motion prevailing, and that we elect some one who knows about fruit.

The ballot was taken, resulting as follows: Whole number of votes, 28; of which A. J. Phillips received 12; B. S. Hoxie, 7; J. M. Smith, 5; scattering, 4.

J. M. Smith—Gentlemen, please drop my name from the list; I do not want the position; do not vote for me again.

The second ballot was taken, and A. J. Phillips receiving 15 votes was declared elected. The election of Mr. Phillips was not concurred in by the agricultural society, and they elected B. S. Hoxie as superintendent.

The secretary introduced Henry W. Ash, a delegate from Iowa State Horticultural Society. Mr. Ash—I am personally unknown to you, but as a representative of the Iowa society, I am glad to meet with you, and I also hope to carry home many valuable plans to my society.

A resolution was presented by A. D. Barnes that the Horticultural society request the employment of expert judges instead of the old plan of three judges. Unanimously adopted.

J. C. Plumb—I move that Mr. Ash be made an honorary member of this society. Carried.

TWENTY YEARS' EXPERIENCE IN AN APPLE ORCHARD IN A COLD CLIMATE.

BY A. J. PHILIPS, WEST SALEM, Wisconsin.

If all the disappointments, losses, discouragements, failures and successes of twenty years' experience in an apple orchard in a climate above referred to should be related at this meeting there would be no time left for any other business or papers. But in this brief paper I will endeavor to give you a few of the principal things I have learned in and about an apple orchard in the northwest by experience and observation, which I hope may prove of value to the grower who has had less experience and is anxious to profit by the failures and successes of others. Now, I have been misled and suffered loss and disappointment by following the rules and advice of those who were more favorably located than I am, so, if you wish to profit by any experience I may give, or be guided by any rules I may lay down, you must compare your location with mine, as to soil, probable degrees of cold, elevation, influence of water, etc. To start out with, 1st. One thing I have learned is that very few who try to raise fruit in this state are as far north and as unfavorably located as I am. This may be contradicted as it is known that I have exhibited at fairs and at winter meetings many fine specimens of the half hardy varieties. But you notice I have quit that foolishness as it was misleading and the trees were too short lived to be profitable, and I have so few apples to show that I am ashamed and leave

the field to my former competitors, who are more favorably located. I refer to Hirschinger, Tuttle, Jeffrey, Kellogg, Palmer, Hatch and others. This experience cost me time and money. 2d. I have learned that the fall is the best time to dig apple trees and the spring is the best time to plant them in a cold climate, and that the trees should be kept in the cellar or buried in a suitable place where water will not stand or mice or rats be allowed to enter. If this and the planting is not well done your time and money will be thrown away, and the man who sold you the trees will be denounced as a swindler. 3d. I have learned that top worked trees, done above the crotches, in a good, hardy stock will outlast the same varieties on their own stocks by at least 25 per cent. if they are of the half hardy kinds, say Fameuse, Wealthy, Utter, Haas, Plum Cider, Fall Orange and St. Lawrence, and have learned that the Virginia crab is the best and most vigorous stalk I have tried, as compared with Whitney's No. 20, Transcendent, Hyslop, Orion, Duchess, McMahon's White and several seedling crabs.

4th. I have learned that trees raised from grafts made with a long cion and a long root set in the ground and never moved are at least twenty-five per cent. better at the same age than transplanted trees and I would advise that plan to a young man who contemplates planting an orchard. Of course he could plant some older trees for his first fruit, and plant his grafts between his larger trees, "which may be planted quite thickly.

5th. I have learned that it is more profitable to plant fewer trees and give them better protection and care as it is very annoying to go into the orchard and find beautiful trees just coming into bearing girdled entirely around by mice because they were neglected last fall, and left unprotected. To much trusting to providence or luck is dangerous to the orchard. I have lost but few trees in that way this winter so far, say five per cent., but that five per cent. would have protected 500 trees. Mice will creep under the grass, pass by a Number Twenty and Wealthy to gnaw a McMahon or Peach apple tree for reasons best known to themselves. If you want a good permanent orchard better set twenty trees a year and give them good care and protection, than to set one hundred and care for them in the usual slipshod way. This winter has been favorable for the work of mice, as not until last week has there been snow enough in my orchard to stamp around the trees and stop them. While doing this work a few days ago around a thousand trees I thought of a passage in Scripture that applied to my case. "He that knoweth his master's will and doeth it not shall be beaten with many stripes." Every tree I found that was girdled I called a stripe, and each time resolved to do better in the future, and called myself some names that I would not enjoy any one else indulging in.

6th. I have learned that though banking with earth or tar paper around the tree will protect, nothing works so satisfactory or is so cheaply done in the long run as the lath protection, for once on it is done for the life of

the tree, and after being on from five to seven years the bark will be perfect, green and smooth and much better able to stand the next cold winters or ravages of mice than a tree with diseased bark. This protection is easily made and quickly put on, and a tree will fill eight lath in about seven years. Saw one orchard last year where the loss from this cause was the entire one hundred trees nearly ready to bear. Few trees with protection would have been better and more profitable, as not only does it present ravages of mice and rabbits but also protects from sun. This setting a few trees and giving extra care does not quite suit the tree seller but for the future of his business he had better sell fewer trees at better prices, get his pay and have his customer satisfied.

7th. I have learned that to set apple trees in a cold climate, expecting to make much money out of it, will disappoint the planter as with our short hot seasons, it is about impossible to raise winter apples in any quantity, and fall apples have to be marketed so quickly that the price is usually low. Some Duchess can be kept back in cold storage and the price usually doubled. But after the trees commence bearing by following my renewal system, the orchard will pay even at low prices, as well or better than any other land on the farm. Another reason for not paying is with cheap freights and rapid transit the northern grower is brought into close competition with his southern neighbor.

8th. I have learned (though I've had hundreds of men say to me, If I could raise apples as you do I would plant trees). If a man has a high location, clay soil, and selects good hardy varieties, and will cultivate and protect properly, and plant from five to ten trees each year, he will have apples sufficient for his own family's use and some for his less ambitious and industrious neighbor as long as he lives, though his lot has been cast in a cold climate, and what fruit he does raise will compare in size, quality and appearance very favorably with fruit grown farther south. The finest Wealthy, Duchess and Pewaukee I saw last fall in attending seven fairs was at Ellsworth, in Pierce county, certainly 60 to 75 miles north of my orchard, and where I expected to see nothing but the hardiest crab.

9th. I have learned that raising apples means having used about one hundred bushels in the family each year for the past ten years, and not raising them would mean ten bushels per year or perhaps less. Never when apples are plenty are we subjected to doctor's visits—plenty of apples means health and happiness. I believe that children that have all the fruit they want learn more readily in school and are more easily managed and behave better; and though I think I have usually a pleasant disposition, I think it is better when apples are plenty than when they are scarce, especially if the scarcity is caused by some fellow taking some choice specimens that I was saving to show at some fair, to beat some competitor with. I much prefer to give away a good many apples than to have a few stolen.

10th. I learned years ago that when my good father reached fourthly

I was usually tired, and I have reached a tenthly I will draw this paper to a close. I do not claim to have told you all I have learned in 20 years, but some of the important things for the good of the orchard. I have learned that the associations connected with apple growing are preferable to many other pursuits; that the business is healthy and pleasant, though in a cold climate not so profitable as some other avocations. I have learned that I knew much less about the business ten years ago than I thought I did. Have learned that the cheapest and surest way to get good trees, true to name, is to raise them. The best way, if you buy, is to buy of reliable nurserymen or local agents, giving the high priced novelty in the hands of the traveling agents a good letting alone. Have learned that if you wish to avoid his visits you have only to post yourself about the business. I have only had one call to sell in fifteen years, and I think he only wanted his dinner. I have learned that the average farmer will buy of a peddler, ignorant of varieties, and pay 40 to 50 cents each for poor trees rather than go a few miles to a nursery and pay from 5 to 15 cents for good ones. These are a few things I have learned, and hope they will profit some one. I have learned that you can not do something with nothing, and hope our legislature will make a liberal appropriation, so that the horticulturists of Wisconsin can make a showing at the coming World's fair that will be a credit to our society and the state at large. If they desire to economize let them cut off and wipe out some useless expenditures.

Mr. Phillips said: I usually prefer to talk, but as reporters sometimes get things a little mixed I have written all that I wish to say on this subject.

DISCUSSION.

F. K. Phoenix — Can the crabs be grown further north and be grown profitably?

A. J. Phillips — I have found men who said they could not grow the Transcendents.

F. K. Phoenix — What is your experience with seedlings?

A. — They give better satisfaction.

Secretary — On a visit last summer to Duluth and Superior, I found crabs and seedlings growing successfully, with no instances of fire blight; the worst enemy to fruit growing there, was the boys.

A. D. Barnes — I have seen some of the finest specimens as far north as Waupaca county, and we do not stop to raise crabs, we raise apples.

F. K. Phoenix — Can we recommend raising crabs where apples fail?

A. D. Barnes — I do not believe there is any place in Wisconsin so cold that we cannot grow apples.

J. Bendixen — I saw the finest exhibit of Duchess and Tetofsky I ever saw any where, as far north as Marathon county.

C. A. Hatch — I have some trees I would like to protect, and I ask Mr. Phillips how he protects his trees with the lath system !

A. J. Phillips — I use eight lath and take wire and weave them together, and put around the trees; this protection keeps out everything. Set the lath on the top of the ground. I use lath from two and one-half feet to four feet in length. I have tried a great many ways but none that I like so well as this.

J. C. Plumb — Mr. Phillips has made a demonstration that is worth a great deal, upon that limestone ridge. We used to think that when we got as far north as Portage, that we had reached the jumping off place, on apple growing, but further north than this, where we get good drainage we can raise apples, and on all of the northern slopes, where good drainage exists, they raise the Duchess and other Russian varieties. Ashland is the home of the Russians; the Duchess and all others of this class do finely there. Nothing has been said of eastern Wisconsin. We have a large lake shore region where we can compete with Michigan in raising apples.

Chas. Hirschinger — I do not like to see every one praising a paper and finding all good qualities in it. Mr. Phillips has made two big blunders according to my notion; one is top-working in the branches. Better top work in the body as Mr. Cotta does. I have top-worked trees that are now twenty years old, both top-worked in the branches and body; they are Pewaukees, and are a failure when worked in the branches. I have twelve apple trees on Duchess stocks. The next mistake is long cion and long root. The long cion is all right, long root a mistake; it is better to put small roots in the ground. If the root is tender the cion will die if it gets a little injury when it is put in the ground.

A. J. Phillips — I wish those were the only mistakes I had made. I do not *advise* any one else to do it, but if you *wish* to graft in the branches, the Virginia crab and the Utter have done well with me. Now as regards long root, in my location it will be all right.

A. D. Barnes — I would like to ask Mr. Phillips if he does not think the long root succeeds because of the long place dug for the roots.

A. G. Tuttle — My experience is that I have had no tree so hardy as the Duchess. I would protect trees from the summer sun, and I would cultivate them, for no good merchantable fruit can be grown in the sod. I would keep a sharp lookout, evenings, for insects.

F. K. Phoenix — I understand that Mr. Phillips raised fall apples because winter apples did not ripen. Now I claim that it takes no longer to ripen winter apples than fall. If it does it is because we do not have the right kind of apples.

A. J. Phillips — I have had Rawles Janet that came into winter green, and I quit growing that variety because of its tendency to do so.

F. K. Phoenix — It is a well known fact to our experienced orchardists,

that Rawles Jannet is a southern apple, and that it take longer to ripen on that account.

Henry W. Ash, Iowa — I wish the idea could be further brought out that was referred to by Mr. Phillips, and refuted by Mr. Hirschinger. I would like to ask if this society believes in that kind of grafting, and if the crotch of the tree is not injured by body grafting?

The next question: Is it desirable to plant fruit trees by the wayside?

A. D. Barnes — Yes; I have twelve hundred trees outside the limits of Waupaca. I have a row of trees set eight feet outside the orchard, and I never have any fruit stolen.

The question: Can the blooming of fruit trees be retarded in spring so as to escape frost?

Mr. Pfeffer replied by letter saying "No."

Mr. Lyon — Yes and no; it can be retarded by location but not by mulching or anything of that kind, because it would require absolute detention of heat to make it a success. Only by selection of locality can anything be done by way of retarding.

A. D. Barnes — By making pyramids around the tree and shading we can hold frost in the ground and hold back in the spring.

A. L. Hatch — I would like to call Mr. Barnes' attention to the fact that a certain grape vine fruited in the green house while the roots were frozen outside.

J. C. Plumb — I know of an orchard near Whitewater, mulched very heavily by its owner, Mr. Utarrett, and he said after several years experience that it did not have any effect by way of retarding.

Mr. Wyman — I make sugar and do not believe you can retard the sap.

T. S. McGowan — You may plant a grape vine and it will ripen its fruit under cover while its roots are outside in the cold. I have seen peach trees experimented with in Rochester, N. Y., and it did not make any difference. It is the action of the sun and heat in the branches that produce blossoms. Will not those trees on light loamy soil blossom earlier than those on stiff soil? I ask Mr. Phillips.

A. — Yes, they will.

HORTICULTURAL ROOM,

TUESDAY, 1:30 P. M.

President Smith in the chair.

The committee on Fruit was announced to be Messrs. Coe, Edwards and Reynolds.

Geo. J. Kellogg was appointed to fill vacancy on Finance committee.

The question: "Is it in harmony with the object of this society to offer

premiums on varieties of fruit which cannot be generally cultivated?" was presented as a topic for discussion.

J. C. Plumb — No; except to some varieties that are worthy.

J. M. Edwards — I agree with Mr. Plumb with regard to berries, but not of apples that cannot be grown successfully.

G. J. Kellogg — It is a well known fact that our state has a large range for fruit and should be divided, sub-divided and re-districted. Except in the way that certain portions grow successfully what other portions cannot, I would not recommend it.

A. L. Hatch — There are three distinct standpoints from which to view this question; one is from the society, one from the exhibitor who wants to make the display, and one the public. The society and the public pay the money for the premiums and they ought to be considered in making up the premiums. I do not think it right to offer premiums for articles that are not worthy. The exhibitor who can show five good new varieties may do more good than the one who can show twelve of the old, worthless sorts. You can get out a better and more instructive exhibit by offering premiums for varieties that can be successfully grown in some localities, even though they may be almost a failure in others. I do not see any use of the exhibitor showing six plates of the Duchess or six plates of Ben Davis; it is better for him to show a number of varieties.

Secretary — I think Mr. Hatch's remarks are good, but he is carrying the question too far. What is the use of bringing before the public varieties that we cannot cultivate successfully? We have a long list that are a success, and then we have another special list. Now what shall we offer premiums on?

M. A. Thayer — My experience is so limited that it is of little value, but my impression is that generally we should be practical, and should only give premiums on varieties that can be successfully grown.

Mr. Lyon — We have in Michigan, experience that may be valuable in this discussion. We had some exhibitors that would display showy varieties that were utterly worthless, and people would come in and inquire about them and want to obtain them. We finally decided that any varieties utterly worthless could not be exhibited. There are some varieties worthy of trial, and instead of offering premiums for the best collection, whether in the list or not, we offered for the best varieties for home use or market, and possessing the best qualities for handling or shipping.

G. J. Kellogg — This discussion comes very appropriate to the committee, of which I am a member, for the revision of the premium list, and is opportune as to whether we shall go on as we have, heretofore, and give the best premium to the biggest pumpkins on the apple table.

What soils are best for the different kinds of small fruit?

M. A. Thayer—My experience in growing small fruits is mostly on a sandy loam with clay sub-soil. There are several reasons why I prefer such a soil; it is more easily cultivated and it is easier to lay down blackberry and raspberry canes on such a soil. It is almost impossible to lay down for protection on a stiff soil on account of injury to canes.

Secretary suggested that the discussion of small fruits had been made the order for the evening session and had better be deferred until that time.

President Smith—The program calls for the election of officers at this hour and we will now listen to the report of the secretary and treasurer. The reports were read and together with vouchers were referred to the committees on Finance.

The election of officers being next in order the chair appointed Messrs. Hatch and Coe as tellers.

The following is the list of officers elected for the ensuing year:

M. A. Thayer, president, Sparta.

L. G. Kellogg, vice-president, Ripon.

B. S. Hoxie, secretary, Evansville.

Mrs. Vie H. Campbell, treasurer, Evansville.

A. L. Hatch, corresponding secretary, Ithaca.

The executive committee by election: Geo. J. Kellogg, Janesville; C. H. Hamilton, Ripon; Geo. H. Robbins, Platteville; James Currie, Milwaukee; Daniel Huntley, Appleton; C. A. Hatch, Ithaca; J. J. McGillivray, Black River Falls, and Wm. Springer, Fremont.

A. J. Gale, of Waukesha, was elected superintendent of fruit exhibit.

Mr. Thayer on taking the chair, responded as follows:

"Ladies and Gentlemen: You have complimented me with an honor I fear I do not deserve. I see those before me who have devoted long years to the work, and when I think of him who has been in the service for so many years and who has performed the duties devolving upon the president of this society with patient, unremitting care, I shrink from the duties of the office to which you have elected me. In accepting the position, I shall endeavor to faithfully serve and discharge the duties devolving upon me to the best of my ability to do so.

The present year determines, very largely, our success or failure at the coming World's fair.

Harmony is said to be the strength of all institutions, and a bundle of sticks is said to be sometimes the emblem of strength; then let us be like that emblem, firmly bound together, a unity in thought and purpose. I regret that we cannot sometimes take older heads and place them on younger shoulders, we could perhaps obtain better results.

Committee on revision of fruit list made the following report, which was adopted. A. J. Philips and George J. Kellogg, committee.

[To prevent repetition this report appears in its place under the head, Recommended Fruit List.]

J. C. Plumb — As regards the report of the committee on the list of apples I think they have done well in dividing it and I wish to propose for the list the name of Windsor Chief. If this society want the testimonials in its favor (I cannot bring the fruit) I will say that Mr. Vandivere, secretary of the Pomological Society, in letters to me, spoke very highly of it, both as to flavor and keeping qualities. The apple was originated in Dane county, and Prof. Budd says of it: "It is the only apple worthy of being called hardy. I want it placed upon the society's records."

Q. What list?

A. I would put it on the first list. Wisconsin has not done justice to her seedlings, and I wish that we might take up some varieties that are third or fourth rate to-day and do for them what they are entitled to receive.

F. K. Phoenix — There are doubtless many here to-day who can vouch for the Windsor.

President — Shall it be placed on the list?

Motion carried.

Mr. Lyon — I wish to express my opinion of the general list, and I wish also to say a word on the subject of Nomenclature. You are all probably aware that there is a decided effort being made by the Pomological Society to strike out any name on the fruit list not having any significance. Take for instance the Lee currant; prolific means very productive, and if the degree of productiveness is beyond a certain amount, that the bush is able to carry, it is against it rather than in its favor.

A. D. Barnes — I move that on the recommendation of Mr. Lyon, the name of the new apple be put on record as the Windsor.

J. C. Plumb — The American Pomological Society have set up a standard regarding those names, and it is for us to go by.

C. H. Hamilton — I am ready to adopt anything that will shorten the names of fruit, but I do not want to see Lee's Prolific currant take a back seat. I think for size, productiveness and long stem, I have never grown any thing to equal it.

Moved that Orange Winter be called Newell's Winter.

A. L. Hatch — I object to the name of the apple being changed. It is known everywhere by the name of Orange Winter; every one calls it that and you cannot change it, no matter how much you may vote to do so. It may help some nurseryman to advertise it as a new variety, by giving it a new name.

Secretary — If Mr. Newell has been the means of giving us this variety of apple let us give it this new name and accord him the honor of it, and not wait to give him the just recognition after he is dead.

Motion carried.

By vote of the society J. T. Lyon, of South Haven, Mich., was made an honorary member.

Adjourned.

EVENING SESSION.

Discussion opened with first topic on program: Best Soil for Small Fruits. President Thayer calling on T. T. Lyon to lead the discussion.

T. T. Lyon — I am not a resident of Wisconsin and am afraid I might mislead. (What is the best soil for Michigan?) A light soil. (What varieties succeed best on a light soil?) Nearly all. My impression is that Kentucky and Sharpless are supposed to do better on heavier soil; that is, they are more productive. I think cultivation is quite as important as soils; we get our earliest fruit on light soils and sunny exposures.

A. L. Hatch — I wish we might treat this subject so that we could get some practical information to take away with us. We want to get the best fruit possible and a virgin soil containing sand, whether Potsdam or glacial, will be the soil to produce a good crop of fruit. If you have a soil not extremely fertile, one that will not furnish too many leaves but instead buds and fruit, then you will make a success. We must make fruit buds this year to perfect fruit next year. If you have a given soil the question naturally arises, what is the best treatment we can give that soil to bring about the requisite conditions to make it bear the greatest amount of fruit? I do not think there is anyone here who does not think if we can stir up that soil, so as to mellow it sufficiently, we will get a good amount of fruit.

Secretary — Prof. Goff has made some very interesting experiments in mulching and protecting and I hope he will give us an account of his experience. We want talk that will help farmers to grow berries. It is often said of us that we shoot right over the heads of the farmers in our discussions. I tell a farmer if he has a stiff soil — too stiff for a strawberry bed, to get a load of sand and mix with it.

J. M. Smith — When I tell farmers how to grow strawberries I tell them any land that will raise a good crop of corn will grow strawberries. A little loose fine dirt is better than straw or anything else I can get for protection. I cultivate about two inches in depth, and the pickers often follow the hoe. We have a large fine sieve that we put the berries in that are sandy, and rinse them with cold spring water.

President — How would you prepare soil for strawberries, Mr. Kellogg?

A. — By plowing not less than eight inches and I would not apply less than forty loads of manure to the acre. I prefer to use green manure for fear of white grubs.

T. S. McGowan — A little salt will kill the white grub. I save all my coal and wood ashes to put on my berries. I take my garden rake and loosen up the soil. I take a sifter and sift on ashes and mix one-third salt and one-fourth lime with the ashes.

President asked Mr. McGowan if he could take meadow or pasture land this spring and prepare it for strawberries? He replied that he would not risk it.

J. C. Plumb — I had a piece of land that had been used for a pasture eighteen years or more. I turned it over in the fall and put the pulverizer on last spring. I worked it up thoroughly and planted it out to strawberries and it was a complete success. I trench plowed.

A gentleman from Spring Green said he could raise a crop of strawberries without mulching and they do not dry out. The land is an old bed of the river, where the channel formerly was.

He was asked what depth he had to dig for water and replied: "Twenty feet, there is a streak of clay below the soil." Although he never mulched he never had a root killed.

T. S. McGowan — My land is about sixteen to eighteen inches vegetable mold. We never suffer from any drouth in our section; we can raise corn there any season.

President — Mr. Plumb has told us what I wanted to know about old soils. It seems to me an excellent thing for farmers to have something that can bring a quick crop — something they can get quick returns from.

Prof. Goff — In New York we made an experiment to find out how much good mulching really does. We put on loose mulching about one inch in thickness. We cultivated three patches and compared those not mulched with those that were. We found that cultivating to the depth of four inches the soil contained about half as much water as that which was mulched, which proved the advantages of mulching. I think if Mr. Smith had a different soil he would find mulching beneficial.

The experiment in mulching fruit was not conducted by me. We found the cultivated soil contained more frost than that mulched.

I think clover is a good substitute on sandy soil, but on my soil I do not think it would answer the purpose.

A. G. Tuttle — I have given rather poor cultivation to blackberries. I am now covering with pretty coarse manure, putting it on in the rows. I picked from one tenth of an acre seventy cases, and picked seventeen cases at one picking on ground that was never manured. I have had the land for thirty-five years and never manured it. My land is very rich.

Mr. Steinfeld had Cuthbert's and bent them down, putting a fence rail on them to keep them down through the winter, and raised a good crop from them that year.

Adjourned to Wednesday morning.

WEDNESDAY Morning, February 4.

Agricultural rooms, joint session.

President Parkinson in the chair.

Address of J. M. Smith.

ANNUAL ADDRESS OF PRESIDENT J. M. SMITH.

Mr. President, Ladies and Gentlemen: After an absence of nearly three months from our state, in company with my wife traveling and visiting with friends and relatives in twelve or fourteen states of our Union, I am happy again to stand before a Wisconsin audience composed of farmers, their wives and daughters, as I see here to-day and I can truly say that in all my travels I have met no class of men more enterprising more intelligent or more thoroughly alive to the great agricultural interest of the country than are the farmers of Wisconsin. I have met many highly educated and intelligent men, some of them professors in colleges and universities, and I have found that nearly all of them are looking to Wisconsin as the model state in agricultural improvement. and more than once, I have been told that they were modeling their methods after those of our own state, as far as their different circumstances will admit.

All of these things I am free to confess, have tended to make me feel proud of my state, though I do not remember that I was ever ashamed that my home was within her borders. Although I honestly believe that in all that pertains to agricultural improvement, Wisconsin stands at the head among the states of our Union, yet we have no time to rest on the laurels already won; for it is true beyond a doubt that there is a spirit of restless study and deep thought going on among the farmers of the United States, such as has never been known before in the history of our country.

In view of all these circumstances, it seems fit that we should meet together in joint convention at least once in each year, and that all the societies in the state that have for their object the improvement of the different branches of agriculture, should be here represented, to consult together in regard to the general interests of all concerned, as well as the particular interest of each of their different departments. In the horticultural department, which I in part represent, I am glad to tell you that we have commenced a series of experiments in different parts of the state, which, although they can as yet, hardly be dignified by the title of experimental stations, we hope may in due time become valuable to our fruit growers, and also to the farmers in all portions of our state. It is a well known fact that although we have varieties of apples that do fairly well in different parts of the state, yet we have no single variety which we dare say to the farmer will be safe to set and cultivate in all portions of the state. The Duchess will probably come nearer to being the common ap-

ple of the state, than any other; yet there are districts where this (as well as nearly every other of our known and tested varieties) is far from satisfactory. The present work of these stations is, and for some time to come will be, to test the best and most hardy of our present known varieties, as well as any others that may come to our notice, which may seem to be worthy of a trial. In the years to come, when our means shall have become more ample, as we trust they will, we shall extend our experiments much farther, and include all other fruits that are or may become adapted to our soil and climate.

We are glad to know that we have Prof. Goff associated with us in this work, which is more nearly under his charge and supervision than that of any other single person. I am also glad that I can upon this public occasion testify to the value of his work in our state, and believe that he is making himself more and more valuable to us with each succeeding year. If this work can be carried on as it should be, I have no doubt but that we can demonstrate to the fruit-growers of our state that there are varieties of apples that will succeed in all portions of our state, and that we shall eventually have apples to sell to those west and north of us, instead of being obliged to import so large a proportion of those that we now use. I was much pleased to hear that our governor had recommended the legislature to make a suitable appropriation for the World's Fair to be held in Chicago in 1893. This it seems to me is eminently proper, and I trust that we shall all join with him in urging upon the members of our legislature, the necessity as well as the importance of such an appropriation. I need not say to this audience that the members of the Wisconsin Horticultural Society stand ready and willing to do their full share in making such an exhibition of the horticultural products of our state as will satisfy the most exacting of our citizens. Our success at the World's Fair in New Orleans demonstrates our ability in this line of work. All that we ask is means to work with; still we shall not ask for any extravagant amount, or one large enough to furnish stealings for any one of its members, even if there are those among them who would if opportunity offered, be guilty of such dishonorable conduct. With the high reputation of our state to maintain, we surely may ask the legislature to appropriate such a sum as will enable our citizens to hold their own against all competitors.

The last few years have been years of depression and discouragement in nearly or quite every department of land cultivation. Horticulturists have not escaped the general decline in prices that has prevailed not only in our own but in foreign countries as well. In my own department I have been compelled to reduce everything to as perfect a system as possible in order to save expense. Still, low as prices have been, rarely have large crops failed to give me a small profit, while moderate or small crops would almost surely run me in debt. Fortunately for me I have had but few small ones for some years past; consequently the result of our yearly inven-

tory has almost invariably shown at least a small balance to our credit on the right side of the ledger, though sometimes it has been a rather uncomfortably small one. Thus we go on striving each succeeding year to grow better and larger crops than ever before. I cannot but believe that the lowest point has been passed, and that the next change will be for the better. I shall not look for high prices in the few years to come, but I think the chances are that the next five years will show an improvement in general prices of both farm and garden products over those of the five years just passed. In the meantime let us each make it the rule in all our business, to do each day's work at the proper time, and in the best manner possible, using all the means within our reach to find out the best methods to ensure success. If all would do this, I think we should have much less complaint of hard times in the future than has been common during the last few years.

Before closing these remarks, allow me to refer to the death of two men who were justly numbered among the most prominent horticulturists on the American continent, viz., Charles Gibbs and Peter Henderson, with both of whom I enjoyed a very pleasant acquaintance.

The home of Mr. Gibbs was nominally in Canada, but his actual residence was where fruits would grow or flowers bloom throughout the habitable earth. His death occurred at Cairo, in Egypt, while following his favorite pursuit. He was an educated and accomplished Christian gentleman and his death leaves a vacancy in our ranks that will be hard to fill. Of Peter Henderson it may be truly said that he was an honor to our nation, and probably there is no man left in our country who is able fully to fill his place. Upright, honorable and generous, and having worked his way up through the various lines of his business, through a system of careful training, he was a safe and competent advisor to any young man desirous of engaging in the same business; and his genuine kindness of heart was often shown by helping others in this manner. While none of us may ever reach the heights to which he attained, we may all emulate his noble example, by lending a helping hand to others when we have an opportunity. These friends have passed from our sight and will no more mingle in our counsels here, but we may hope to greet them in the better land whither we are all hastening.

THE PLEASURES OF FARM LIFE.

By WARREN GRAY, DARLINGTON, WIS.

Much has been said and written, of trial, storm and strife,
Of bitterness and sorrow, that's found in a farmer's life.
But my theme shall be of pleasures found, in no other life of toil,
Save in the earnest active life of the tiller of the soil.
Whether on the broad prairie, with its many acres rich,
Or in the cottage garden or the window's sheltered niche.

Whether harvesting the golden grain under the midday heat,
Or gathering in the ripened fruit bursting with juices sweet.
These all are fraught with pleasure rare, that cannot well be told,
But by him who toils in summer's heat, as well as winter's cold.
Prominent among the causes that bring these pleasures forth,
Work is a potent factor without which there is no worth.

God's word went forth to all the men that dwelt upon the earth,
By the sweat of thy face thou shalt eat the bread thy labor bringeth
forth.

Who, cheerfully the word accepts, and willingly doth work,
Doth find a blessing; but a curse to him who plays the shirk.
Above the crafts and trades that toil, this blessing to secure,
Is he who labors on the farm, its hardness doth endure.

He follows the plow with cheerful tread (or rides upon it well);
And loves to see the loosened earth go spinning from the steel.
Most happy he who plows and plants, and calls the earth his friend,
Which brings him forth his daily bread, on which he does depend.
He jointly with his Maker works, who on him blessing pours,
He breaks the soil and plants the seed, God gives the sun and showers.

With faith and diligence he works, with patience doth he wait,
The sprouting blade, the waving plant, he loves to cultivate;
From depredators guards it well, and trusts the time to come,
With sun brown face, and horn gloved hands, to shout the harvest home.
Then let us work with such good cheer, that we in truth can say,
Blest work, if thou art the corse of God, what must his blessing be?

Growth is another prolific cause, that gives the farmer pleasure.
Noting it on every side he has joy without measure.
If growth is life and life is growth, one cannot well deny,
The moment that we cease to grow, we then begin to die.
'Tis happiness to live and grow amid the world of life around,
Observing nature while it shows the life which doth abound.

And when the growing season comes how every heart rejoices,
As songs of praise float on the breeze from many happy voices.
In the orchard, garden, mead, and field, and in the pasture green,
The spreading leaf, the rising blade, the opening flowers are seen,
The sprouting corn in even row, bedecked with dew drops bright,
While waving fields of growing grain, reflect the morning light.

The strawberry among the fruits, our attention first receives,
As we spy its crimson cheek hid among its wealth of leaves,
Other fruits in succession please our taste and cheer our hearts,
Mellow apples, purple plums, luscious grapes to make our tarts.
Then the wealth of ripening grain, that tints the prairies far and near,
Like a sea with golden billows, shining in the sunlight clear.

And the growing animal life, in pasture and in yard,
The playful colt, the happy lamb cut antics on the sward.
While ducks and geese enjoy the stream, with downy waddling brood,
Calves, chickens, pigs and turkeys seem, all in a happy mood.
All around is happiness, all around is growth and life,
Doth it not great pleasure bring, to the farmer and the wife?

While children like olive plants do grow, the home to grace and bless
Should not the parents wiser, better, grow as they in years increase?
Then all around that lives should grow, and everything progress,
But the mortgage and the store bills should grow beautifully less.
Independence another thing 't were well to briefly mention,
As a source of happiness deserving our attention.

All the world depend upon the products of the soil,
The bread they eat, the clothes they wear, result from tillers' toil,
Then it is quite evident the farmer feeds the nation,
And if it thinks to him ignore, 't will go without its ration.
Then who so free, and who so bold and who of so much worth,
As he who raises and controls, the products of the earth.

At combinations he may laugh, and bid them all defiance,
And paralyze the politicians by joining the Alliance.
Then we'll feed the nation with honest food, if they'll pay us what its
worth,

And labor on trusting the Lord to give it from the earth.
There's various other pleasures Time fails us to declare,
Such as raising cows and horses to show at the county fair.

Milking the well-fed Jerseys, bereft of their wicked horns,
And stuffing them with ensilage while standing in the barn.
Clear conscience, sound sleep, relish for fruit and vegetable,
All the plain and wholesome food, that loads the farmer's table.
The golden butter the housewife makes, fresh eggs the chickens lay,
The fattened gobbler gracing the board upon Thanksgiving day.

Attending the farmers' picnics, with men of good repute,
Or writing up a paper for the farmers' institutes,
Thrice happy he who tills the soil, and on its fruits depend,
Who cheerfully his part performs and calls the earth his friend,
Now all young men and maidens, choosing a pursuit in life,
The first should be a farmer, the other a farmer's wife.

THE FARMER'S FRUIT GARDEN—ONE-FOURTH ACRE.

By M. A. THAYER, SPARTA, WIS.

President Wisconsin State Horticultural Society.

If the farmers of Wisconsin fully appreciated the great advantage of a fruit garden, few would be without one.

You can get from it more health, more comfort, more inspiration and more dollars for the same labor than from any other portion of the farm.

A farmer's home, with house plants in the window, flowers on the lawn, and a succession of small fruits from a garden planned, planted, pruned and protected with aid of wife and children, giving each child control of a particular plant, bush or row, will do more to make children love the old homestead and keep the boys on the farm, than all the precepts ever taught them.

Horticulture is an important department of agriculture, and its study and practice will certainly stimulate the farmer to better tillage, larger crops, finer stock and greater success in every way.

Now, I have not come here to introduce some new untried, high-priced novelty. I am not here to sell plants of any kind, neither have I come to ask any considerable portion of your best land or very much of your time. I simply ask your attention to one little $\frac{1}{4}$ acre of land, and propose to illustrate how any person with ordinary intelligence can have fresh fruit, for the family or market, throughout the season, and produce thirty bushels on this $\frac{1}{4}$ acre.

Now I want to select this one quarter acre on your farm, near your house where your wife and children can look after it.

It is your garden, now be generous and let us have a good piece.

I want it four rods wide and ten rods long, nearly level and well drained.

If you raised corn or potatoes on this piece last year, and it was rich, there is little to do to prepare it for planting, but if a part of an old meadow or pasture and all run down, we have work to do.

First put on a heavy coat of well rotted manure, plow very shallow and cut the sod fine with a disk or acme harrow, then plow again deeply, manure as before and harrow until fine and mellow.

For several weeks we have, of course, been studying the varieties we want, and those that are hardy and do well in our vicinity.

We also want thirty bushels of fruit coming in succession throughout the season.

This may be easily produced by adhering to the directions and illustrations of *The Farmers Fruit Garden*.

Our garden being 66 feet wide and 165 feet long, and wishing to do all labor possible with a horse and cultivator, we stake off the ground in rows 150 feet long and seven feet apart.

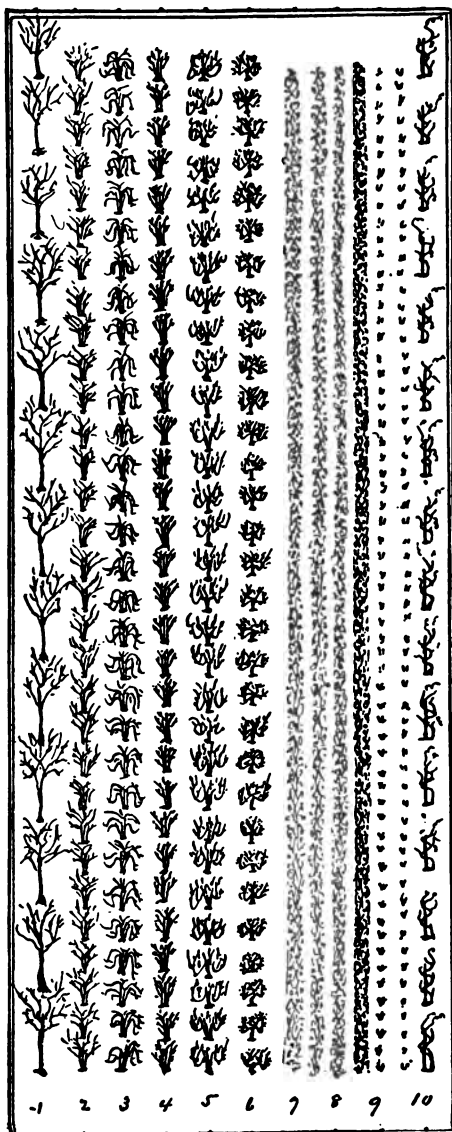
Strawberry rows to be one-half this distance, leave a head land 7½ feet wide at each end for turning. Make the first row three feet from the outside and set as follows:

	Pro- duc- tion.
1st Row—18 Plums and Crab Apples: 5 DeSoto; 2 Cheney; 3 Transcendent; 3 Hyslop.	5 bu.
2d Row—50 Blackberries: 40 Ancient Briton; 10 Snyder.	3 bu.
3d Row—50 Black Raspberries: 40 Ohio; 10 Gregg.	2 bu.
4th Row—50 Red Raspberries: 25 Marlboro; 25 Cuthbert.	2 bu.
5th Row—50 Currants: 25 Victoria; 25 Red Dutch.	4 bu.
6th Row—50 Currants and Gooseberries: 25 White Grape Currant; 15 Downing; 10 Houghton.	5 bu.
7th, 8th and 9th Row—300 Strawberries: Warfield No. 2, Jessie, Crescent, Wilson.	5 bu.
10th Row—17 Grapes: 3 Moore's Early; 6 Worden; 5 Delaware; 3 Concord.	4 bu.
Total	30 bu.

These suggestions are based on practical experience in growing 40 acres of small fruit; 25 acres of same in blackberries and raspberries.

I have a love for the work and will, without charge, cheerfully send full instructions for growing small fruits to any person on receipt of name and address.

First in season comes the strawberry. The strawberry



grows in every climate, on all kinds of soil, and with most any kind of treatment, but best results can be obtained only by good fertilization and high culture.

The ground should be covered with barn-yard manure, well plowed in and top-dressed with rotted manure. This should be thoroughly mixed with the top soil by harrow or drag. Thorough preparation will save much labor in caring for plants, and greatly increase the crop.

Use a line to get rows straight, and a spade or trowel for making holes.

Plants should be prepared for setting by trimming off old leaves and runners, roots straightened out and cut back to four or five inches in length.

The roots should never be dry or exposed to the sun and wind, and should be set out as soon as possible.

SETTING.—One man with spade or trowel; insert it to the depth of five or six inches, push forward while a boy takes plant and with fingers spreads roots out fan shape, and inserts same in hole, holding until the spade is withdrawn and dirt packed securely around plant with foot.

Care must be taken to have roots well spread, the earth firm around them, and just even with crown of plant, neither too deep nor too shallow.

If the season is dry, cultivate or rake over the ground at once, and wet or dry every week during the season.

Weeds must not be allowed to grow. Frequent cultivation keeps the ground moist and mellow.

Permit no fruit to grow first season; pick off all buds and blossoms.

First runners should be cut off; later ones allowed to grow and trained to form a matted row, with clean paths between.

When ground is frozen in the fall cover lightly with clean straw, marsh hay or coarse manure, and in the spring rake between the rows to hold moisture and keep the berries clean.

All plants are either staminate or pistillate (male or female), and pistillate varieties should have staminate planted with them about every third row.

Many fail to raise good crops because they do not understand this law.

Strawberry beds should be renewed every two or three years.

To do this in our garden, we will set only two-thirds of the bed this year and plant the balance to potatoes, next year the potato ground will beets to strawberries, with plants from your own grounds.

After second year, plow up one or two rows of oldest berries every year and plant to potatoes, following with new vines.

Thus always having a part new setting, a part bearing one year and a part bearing two years and a continuous renewal of healthy plants.

Black Raspberries. After preparing the soil same as for strawberries, make straight rows seven feet apart, and plant three feet in row. The roots should be well spread out in their natural position and the dirt well

firmed about the roots, but not planted to deep. Cultivate thoroughly, and keep free from weeds.

A mulch of coarse manure or what is better, green clover, cut in the blossom, will hold moisture, prevent weeds from growing, keep the ground rich and the berries clean. When new shoots are fifteen or eighteen inches high, pinch them off. This will cause laterals to grow, which should be cut back in the spring to twelve to fifteen inches in length. When the fruit is all gathered, cut out old and young weak canes and burn them.

Red Raspberries are treated in the same manner, excepting they should be planted deeper, and are not cut back in the spring. They spread very rapidly, and all plants excepting five or six stalks for main hill, must be treated as weeds and hoed out.

Blackberries require same preparation of soil as for strawberries and raspberries.

Plant in hills three feet apart and in rows seven feet apart. Hoe, cultivate and mulch same as for raspberries. When new growth is 15 or 18 inches high, pinch them back. Cut out old canes after bearing, and burn them.

Blackberries and most kind of raspberries need winter protection in this climate, and are best covered with fresh earth. In laying them down (the rows running north and south), commence at the north end, remove the dirt from north side of hill about four inches deep, gather the branches in close form with a wide fork, press gently to the north, at the same time place the foot firmly on base of the hill and press hard, bending the bush *in the root* until nearly flat on the ground, and hold until second man covers with dirt. The top of succeeding hills will rest near base of preceding hill, making a continuous covering. This process is an important one, and will be easily acquired by a little practice. In the spring remove the dirt carefully with a fork and raise the bush.

We support blackberries and raspberries by a No. 12 wire on each side, attached to posts at each end of the row, and resting on nails driven in stakes about twenty-five feet apart. This support protects bushes from heavy winds; the fruit from dirt, and makes hoeing, cultivation, mulching and picking much easier.

Blackberries require no trimming in the spring, excepting to prevent too large a growth of fruit. For large fruit trim freely.

Currants and gooseberries can be as easily grown on rich, deep soil as potatoes. Set in rows six or seven feet apart and three and one-half feet in the row. Cultivate them thoroughly, and keep center of bush well trimmed out.

Both are subject to the attack of the currant worm, which can be as easily exterminate as the potato bug, by using white hellebore (one ounce dissolved in three gallons of water) and apply with sprinkler on lower and center leaves at their first appearance, about the time the fruit forms. Repeat the application a second time, or even a third if necessary.

In the growing of small fruits, I make no iron clad rule to govern all minor details.

The selection of a location, the quality of soil, the varieties to grow, the manner of planting, trimming and many other things must be determined by circumstances and your own good judgment.

There are, however, certain essentials which cannot under any circumstances be omitted without loss if not certain failures.

The ground must be rich and well prepared.

The plants must be vigorous and adapted to your needs.

The roots must be well spread and earth firm about them.

The ground must be frequently cultivated and free from weeds.

Winter protection, for small fruit plants is an *absolute necessity* in Wisconsin.

In close connection with this subject, let me say, the greatest need of Wisconsin farmers and horticulturists to-day, is organization.

We need a good Horticultural or Farmers society in every good town and representatives to our state meetings from every locality.

We want hundreds of members where we now have tens.

We want acres of small fruit where we now have rods.

We are paying thousands of dollars to other states, every season for fruit that should be grown here, and the great Northwest is clamoring for berries we cannot supply.

How easy to organize societies. A simple constitution that may be written on paper no larger than your hand, is all that is needed as a basis for your work.

Five or ten persons may organize a society as easily as a hundred and receive the same benefit.

There are many reasons for it. I mention only one or two.

Ten or more, decide to set out a fruit garden as recommended and organize a society.

Let the secretary subscribe for several first class agricultural and horticultural papers; let him also ask for the several state reports, agricultural, horticultural bulletins, etc., etc. All will be furnished cheerfully and without charge.

In this way you may provide a large amount of good reading at moderate cost for general circulation among your members.

These benefits cannot be measured in dollars and cents.

From an eastern retail price list of nursery stock I find it will cost \$52.50 to purchase plants enough for one of our farmers fruit gardens."

Now, *mark well*, what organization will do.

Let the same ten persons setting ten different gardens, make one order as a society, for all the plants wanted, demanding same at 1,000 rates, and any responsible Wisconsin fruit grower or nurseryman will furnish them for \$12 each, thereby saving to each member \$40.50, and to the society \$405, in this single purchase.

Therefore I say, *organize at once*, it will benefit you socially.

Subscribe liberally for good papers, it will benefit you intellectually.

Plant a small fruit garden, it will aid you financially and be a comfort to your family and friends.

My faith in the citizens of Wisconsin leads me to hope that many new societies may be organized and that thousands heeding these suggestions will soon rejoice in the possession of a model small fruit garden.

DISCUSSION.

G. J. Kellogg explained why it was necessary in planting a strawberry bed to set some staminate varieties. Pistillate varieties are the strongest plants and heaviest bearers, but require other varieties to fertilize them. Staminate plants should be set every three or four rows.

Q. How high above the ground do you place wire supports for canes?

M. A. Thayer — The first season the plants come up I would put the support one and one-half feet high. The next year put them up three or four feet according to growth. (If you pinch off the canes each year will they grow so high?) You must cut off the old wood after each year's bearing and keep canes about the same height.

Q. How thick do you put the clover mulch?

A. About three inches, one acre of clover will mulch one acre of berries.

Q. Would you mulch strawberries with clover?

A. No; clover comes too late in the season. I cultivate continuously, there is more fertility in cultivation than anything else.

Voice from the audience — I found the weeds come up through the mulch, and I put on six inches.

M. A. Thayer — After the clover breaks to pieces if the weeds come up we hoe them out.

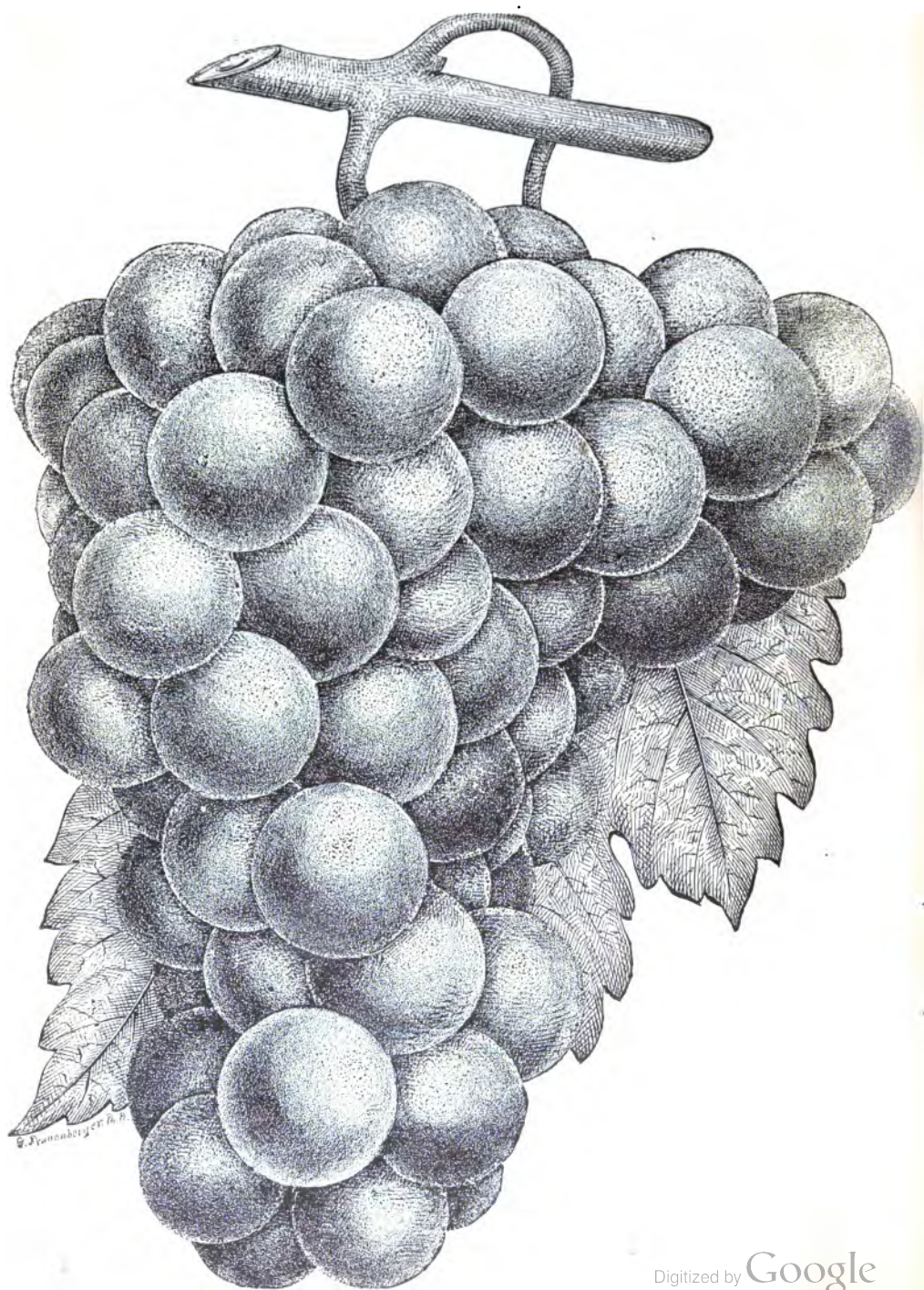
The best way to grow blackberry plants for setting is to cut the roots in pieces six or seven inches in length and plant them. I do it in the spring or fall when I have time; plant in rows and cover with sand as you would potatoes.

Q. Do you pinch back the red raspberry?

A. Only once.

Q. How do you fasten canes to wires?

A. I do not fasten them. I put wires on each side of the canes. My plantation is laid out in rows so I can cultivate eighty rods, then I have alley ways cut through, making it easy to distribute the clover. I set stakes every twenty-five feet to support the wires. End posts with stakes will be sufficiently strong. The prevailing winds being west we need more support on the east side than on the west side. I cover blackberries entirely, and raspberries — hardy ones — partially.



J. C. Plumb — How many years successfully, have you cultivated and laid down?

A — It is four years since I commenced.

J. C. Plumb — The best black cap plantation I ever had, I cropped ten years and the stools are so large I do not see how they can be laid down.

J. M. Smith — I would like to ask Mr. Thayer why he plows twice?

A — Because you get the ground the better broken up.

J. C. Plumb — I object to your allowing so small an amount of fruit to your crab apple trees.

M. A. Thayer — These estimates are just about one-half of what you may expect to secure. You must make a liberal deduction for birds, boys and insects.

J. M. Smith — Why cut off the runners from strawberries?

A — I think you get more vigorous plants and better fruit.

J. C. Plumb — I want to say one word about one point not touched on in this paper. He strikes a vital point when he speaks of a combination of ten farmers in purchasing their stock direct instead of dealing with tree peddlers. Go to a reliable man who has a good reputation and is near your own locality.

G. J. Kellogg — I think if the audience fail at all, it will be in setting strawberries. In selecting the plants take two rows from perfect flowering kinds and the next four from pistillate. Most farmers fail from going to old beds for their plants. Pistillate varieties outgrow others ten to one and the chances are you will get no staminate.

GRAPES IN WISCONSIN — GRAPES FOR THE MILLION.

By J. S. MCGOWAN, JANESVILLE.

Mr. President, Ladies and Gentlemen of the Wisconsin Horticultural Society:

When your worthy secretary invited me to prepare a paper on the subject of grapes, I felt that I was better fitted to receive than to impart instruction. The little knowledge I have gained about grape culture, has been learned before and after ten hour's work at a trade. Our respected friend, Mr. Hoxie, has named this horticultural child, Grapes in Wisconsin, and for the Millions, and has called on me to foster it. I was not present at the christening, but am here for the dinner. Every Wisconsin farmer and every city resident owning an acre of land or a city lot, should plant a few grape vines for their own use.

The millions should grow the grapes just as well as the tens. There is no fruit we grow, less subject to the depredations of insects, than the grape. It comes to us from the hand of nature, with a bloom on its cheek.

a worthy model for an artist, therefore, the location to grow it is well worth our consideration. You often hear it said, that we need not be particular on this point, since the vine is found growing wild almost everywhere, even along the river beds. This may be true, but the fruit grown in such a place, as a rule, is worthless.

Location is of far more importance than is generally supposed.

For my choice, I prefer high, dry, good corn land, with just slope enough to carry off the summer rains, so that water will not stand on the ground.

Low, wet places should be avoided, for the reason they are more subject to cold fogs, late and early frosts and somewhat subject to mildew.

EXPOSURE.

The purpose to be gained by exposure consists chiefly in the admission to the soil and vines of the greatest amount of the sun's light and heat. On this point some growers fancy an eastern and others a southern slope. I prefer a southeastern slope, but reasonably good results may follow either.

DIRECTION OF THE ROWS.

I prefer an east and west direction for the reason, it will admit the morning sun and dry up the vines before the heat of the day; in a great measure preventing disease. The prevailing winds, at my place, are usually from the west and southwest, thus the north and south rows, suffer more than they would if running east and west. I have a few vines trained east and west, and I find they stand the storms much the better.

As to shelter, some advise hedges, others belts of trees. My preference on our land in Rock county is a site out in the open field, or at least ten or twelve rods from any trees, where there is a free circulation of air. Close, sheltered, suffocated positions, and strong rank fertilizers, I consider one of the leading tempters to mildew and other like diseases.

SOIL AND ITS PREPARATION.

I can only speak of Rock county, in the locality of Janesville. On any of our prairies, where the sod is rotted, good deep ploughing and harrowing is all that is needed. Timber lands, with hard tenaceous sub-soils, should have the first plow followed with a subsoil plow, thoroughly breaking up the land, good and deep. Where there is a gravelly sub-soil there is no need of anything more than good ploughing and harrowing.

DISTANCE TO PLANT.

The common distance is about eight feet apart each way. On good strong ground some fast growing kinds may be planted nine to ten feet in the row.

VINES.

Good, strong, two year old vines, by some are considered best. I call

this a good basis to start upon (If they are grown from good, well ripened wood, made into cuttings of three eyes each.) But cuttings of wood that bore fruit this season would be worthless to me. Many pick up shoots about the bottom of old vines, but poorly rooted. Such vines as these I consider worthless also. The vitality in the one case is exhausted by carrying its fruit, in the other by the parent vine.

Cuttings made from good, ripe wood of this season's growth, planted in the fall, will on the following fall, if well cared for, make roots better than most commercial roots two years old.

PLANTING.

Stretch a line across the piece of ground you intend planting; drive a stake about five feet long where you want to plant the first vine, measure off eight feet and set another stake, and so on to the end of the row. Then take up the line, and dig the holes, about fourteen inches deep, and wide enough to admit the roots without bending.

Loose up the stiff ground in the bottom of the holes, then put in sufficient of the top soil to raise the ground to the depth wanted to plant the soil.

FALL OR SPRING PLANTING.

This question is often asked. With good care and the ground in good condition, good results may follow each.

My preference is for the fall. As a rule the ground is in better condition than in the spring, and we are less hurried. When planted in the fall, the young vine should be covered with earth to the depth of about four inches, then a fork full of mulch put over it for protection.

Everything ready, roots shortened a little, place the plant so the stalk will be about six inches from the stake. Straighten out the roots so they will not cross each other, work the fine earth in between them with your hands; be sure every little hollow is filled up, press it down close about the roots, but not hard; let one bud be above the ground.

The object of setting the plant a little way from the stake is to train it to grow in a leaning position, making it easy to lay down and cover.

Never put water on the ground when planting. Carry the plants in a pail of muddy water, when taken out the roots are wet and the fine earth will adhere to them better than any other way.

TRAINING THE VINE FIRST YEAR.

Very little or nothing is to be done to the vine the first year, only to let one cane grow, and keep it tied up to the stake and give good cultivation.

In the fall if it has made a good growth, about six feet, cut it back to twelve inches high; here begin to form the vine. If a weak growth cut back to two buds, and wait another year. The second season let two canes grow. About the tenth of June look them over, and if they have made a good growth, say about six leaves, pinch back the weakest. And a week

later, or when the cane left unchecked is about two to three feet high, stop this also. This will force the laterals on this cane into a strong growth, and on these we may expect some fruit next season.

In the fall of the second year, when the leaves have fallen, I cut the branch stopped first, back to two or three buds from the base; then go over the same with the laterals, leaving four of the best; shorten these to three or four buds each, according to their strength.

The young canes must be kept neatly tied to the stake; pick all the tendrils off as the vine advances. Always apply good discriminating judgment to every operation of the vine garden.

In the spring, or the third season, we have the vine with a spur of three buds, and a cane with four laterals. From the spur let two or three canes grow. If they grow evenly let them grow unchecked, but if one grows faster than the others, I pinch out the last bud, and let the laterals grow; in this way the canes can be made to grow very regular. I do all my vine dressing in June.

Slow growing varieties (like the Delaware) fruit best on single rods. Fast growing kinds will fruit best on laterals. Many kinds fruit best on young spurs on old branches; such as Iowa and many of the Rogers varieties. It is only by close observation that these distinctions can be made.

In the fall of this year I cut the fruit branch back to two or three buds, and the other canes I shorten to four or five buds each.

Good, clean cultivation and covering ends work of the third year.

TRAINING THE FOURTH YEAR.

In the spring of the fourth year, we have the vine with a spur of three buds and two or three fruit canes. From the spur we will usually have three canes. If these grow evenly, let them grow unchecked. The yearly treatment is very similar; never cut anything off of the vine but what you will have a purpose in doing so. We must have an object in view when we cut one branch at two buds and one at five; we should know what to expect from each.

A word about digging holes. I was taught when young to dig the holes eighteen inches to two feet deep, then fill them up to the depth wanted.

This is all wrong. Deep holes in hard ground draws the dampness and makes a wet, sour pocket for the roots.

We now have the vine under fair control, and it will increase from year to year as fast as needed. The main object here is to grow just wood enough for next season's fruiting and no more, and have this good and well ripened. If we allow more canes to grow than we need, we overtask the vine and impoverish the ground. For our neglect we will have poor ripened wood and a back load of brush to carry off and burn. Just here we come to the most particular part of the vine dressing. With this well done, success is sure, other conditions being favorable.

Now we come to the branch bearing the fruit. This we stop just as

early in the season as we can see the young fruit buds. This will be when the branch is about nine to ten inches long. Pinch with the thumb and finger, this branch between the last bunch or blossom and the next leaf.

In doing this work early we do not rob the vine of the quantity of leaves that we would if deferred until after the bloom. Another thing to be remembered here is that the knife has no place in the vine garden, only when we cut a string or sharpen a stick. Care must be taken that the foliage is not injured in any way, for without leaves the chances of fine fruit would be very poor.

About a week or ten days after the foregoing, the buds, at the base of the leaves, on the fruit bearing branches, will push out shoots opposite each branch. These I go over and pinch off as soon as they show one leaf about two inches in diameter, this leaf I save. This shoot will sometimes start again. In about two weeks, go over them once more pinching them back, saving another leaf. By this process we increase the leaves but not the wood.

Next rub off any shoots that may appear between the main branches and the ground. Thus always keeping it clear under the vines, allowing a free circulation of air, benefitting the vine, and prohibiting mildew in a great measure.

The next operation is thinning the fruit. This should be done as soon after the blossoming week, as the young fruit can be nicely seen. This early thinning the fruit throws all the energy of the vine into the remaining bunches, causing them to develop very rapidly.

The annual prunings are nearly the same every year, only modifying the pruning and fruiting according to the strength of the vine, pruning shorter if the vine shows a decrease in vigor, longer if it grows too rank.

Should the vines show a want in vigor, so as to indicate a want of fertilizers, they may be strengthened with leaf mold, compost and ashes, the best of all is vegetable muck from sink holes in the woods. Prof. Housman, a good authority, says this short and early pinching is also a partial preventive of mildew and rot, as it admits light and air to all parts of the vine. But I cannot caution too severely against late cutting back.

It is one of the first causes of disease, and ruinous to the vine, as the defoliation of the vine in July and August disturbs and violates all its functions, and enfeebles it. I know this to be true. I find late cutting back, in the ripening months, one of the causes of grapes cracking. Again, I find some growers who advise heading the vines in with a hedge shears, and indiscriminately cutting all the canes back any time it is convenient. This to me is very poor practice, and is lacking in knowledge of the true physiology of the vine. Where this continuous pinching has been advocated by such men as Phin. Allen, Mead, Fuller and hosts of others, it was years ago when they undertook to grow such late varieties as the Isabella, Clinton, Catawba, Diana and others, but since we have many varieties three to five weeks earlier, I don't find any benefit from

this practice. But I find it a positive injury, often causing ripe fruit buds to push late in August, injuring our prospect of a good yield of fruit the ensuing season.

WINTER PROTECTION.

Again I say plant the vine. Surely our Wisconsin farmers owning all the way from forty to three hundred acres of land, can afford a small piece of ground for the vine, and that not in a fence corner. And he can afford to plow and put it in good condition also. I do all my covering with earth. Then I put what brush I have over the covering to protect it from being disturbed. After all the covering is done, I take the spading fork, and spade the ground all over, distributing the earth evenly over all the roots. Surely there is no fruit more inviting than a plate of well ripened grapes. And doubly so since we can grow them ourselves.

Thanking you for your kind attention, in conclusion I want to say to the better half of the household, the mothers and daughters, plant a few vines for yourselves, and take pride in so doing, since we owe our early grape culture to ladies. The hand of woman first plucked from the thorns that good old pioneer grape, the Isabella, and gave it to civilization. That grand old mother grape served us long and well, and we can now afford to lay her to rest, and let the children that is come after her, fulfill the mission she so well began.

A lady gave us the Diana, a favorite in its own locality — also the noted white grape, Rebecca. For quality and productiveness man has not given us any better.

Again, I say to you, ladies, plant a vine and if no better place, give it a corner in your rose bed; and it will with its purple and golden fruit vie for a first place in your admiration with its lovely companion the rose.

In conclusion Mr. McGowan said he was not in favor of growing vines in a cluster like a hill of corn. If the renewal system is practiced you will get more fruit than in the other way. Cut the vine down to the ground in the fall.

If your cane is long jointed let it grow, but if not rub out every other eye, stop the little branch that has the fruit on it and that will be the reserve cane for the next year.

If you prune rightly at the end of ten years you will have no more vine to cover than when you first started. (Illustrated with specimens of vines.) When you stop one cane the other bud goes on and takes its place next year. Shoots around center of vine are of no use, they are exhausted by the parent vine.

PLANTS AS AFFECTED BY COLD.

By PROF. E. S. GOFF.

The central regions of great continents lying in the temperate zones possess a climate of great vicissitudes. Far removed from the equalizing influences of the ocean such countries often have a summer of almost torrid heat, followed by a winter of Arctic cold. The economic flora of such regions is limited not so much by the shortness or coolness of the summers as by the extreme severity of the winters.

Our own state of Wisconsin possesses these climatic conditions. The heat of our summers in the average season is sufficient to mature the melon, the tomato, and the Indian corn, all natives of the tropics; but the severity of our winters is such that very few of the temperate fruits succeed without protection. The obstacles to successful horticulture in Wisconsin are, therefore, less in its summers than in its winters.

While we cannot hope to modify climatic conditions to any great extent, an inquiry into the manner in which plants are affected by cold aside from its intrinsic interest, can hardly fail to suggest some ideas which we may turn to practical account.

THE DORMANT PERIOD IN PLANTS.

Perennial plants in all climates undergo alternate periods of activity and repose, an order of development which cannot be wholly ascribed to the change of seasons. In the tropics, as well as in the temperate zones, plants have their resting or dormant period. The leaves do not mature and fall in autumn because the weather is cooler in autumn than in summer but in response to the same laws of growth that cause the fruit of the strawberry to mature in June, and that of the blackberry in August.

As the dormant period approaches, the protoplasm of the plant becomes less active, its absorbent power diminishes and as a result the plant tissues lose a considerable part of their water. The assimilated food in the mature leaves with most of their dissolved potash and phosphoric acid are removed into the stem and the emptied leaves having no further office to perform are detached and fall to the ground. The undeveloped leaves, in the meantime, have been transformed into bud scales to protect the tender growing spinot during the dormant period. When all parts of the tree or shrub have reached this stage the plant is prepared for a frigid winter and is able to endure vicissitudes that would be quickly fatal to it in its active state.

But unfortunately the approach of cold weather in autumn does not find all of our trees so well prepared. Too often the younger shoots are still in a condition of active growth. Their wood is gorged with sap and their leaves still fresh and stocked with assimilated food. Such a tree or shrub

is not in condition to cope with the vicissitudes of an arctic winter and its fate must depend much upon the lenity of the elements.

The water contained by plants is not usually in the free condition, but is either very intimately combined with the protoplasm or with the material forming the cell walls. Before this water can form into ice, it must crystallize, and in order to do this, it must separate from the plant tissues. The more water the tissues inclose the less rigidly do they retain it, and hence the more readily will a portion of the liquid separate out to form ice crystals in a falling temperature. It follows that the less mature the growth the more ice will form within the tissues and the greater the danger of injury from frost.

HOW CAN WE PROMOTE EARLY MATURITY.

Whatever we can do in the way of treatment of the soil or of the plant that will induce early maturing of their growth, will tend directly to increase their hardiness. A well drained soil that warms promptly in spring and retains its warmth late in autumn, and is at all times free from excessive water, is one of the essential requisites to well matured wood in plants that incline to late growth. Nitrogenous manures tend to stimulate growth and hence should be avoided, as should cultivation late in summer, since by increasing soil moisture it tends to a succulent condition of the wood. The growing of some crop that has a large leaf surface, as buckwheat, late in the season is of advantage since it tends to reduce the water content of the soil, and thus to hasten maturity. Pinching the tips of the growing shoots at the beginning of autumn acts as a check to growth, and thus tends to ripening of the wood. Removing the leaves from young trees that incline to grow too late promotes the same end, and in late varieties of the apple, it is found that a prompt gathering of the fruit has a tendency to promote wood maturity.

THE EFFECT OF FREEZING UPON PLANT TISSUES.

The freezing of plant tissues is not necessarily injurious. Our hardy trees and shrubs are not exempt from freezing in severe weather, nor are the so-called tender plants always destroyed by freezing. Much depends upon conditions. Every gardener knows that a frosty night in autumn succeeded by a foggy morning is generally harmless even to plants quite susceptible to injury from frost. Apples covered with leaves in the orchard during the winter are sometimes found in the spring uninjured by frost, and we have all seen potato plants that grew from tubers left in the field all winter. The nurseryman knows that the roots of trees frozen when out of the soil are generally destroyed, while if covered with soil, they are rarely injured. What then are the conditions that decide the amount of damage caused by freezing?

Very much depends upon whether the frozen tissues are thawed slowly or rapidly. While frozen, the structure of the plant is temporarily disor-

ganized, from the fact that a portion of the water has been extracted from the tissues and formed into ice crystals. Now if this water is gradually set free by the slow melting of the ice crystals, the tissues will be able to absorb it again, and little or no permanent harm will result. But if it is set free more rapidly than it can be absorbed, the unabsorbed portion will escape, and thus the disorganization will become permanent. The beneficial effect of fog upon frozen plants is probably due to the retarding influence upon the thawing of the ice within the tissues. This probably explains also, the fact that potatoes and the roots of trees suffer little harm when frozen beneath the soil, and that the canes of the raspberry, blackberry and grape are so well protected during winter by a slight covering of earth. We may apply this principle to the treatment of frozen plants, or of frozen fruits or vegetables. By placing these under conditions where the thawing will proceed as slowly as possible, as immersing them in ice water, or packing them in snow, we may often avoid serious damage. An instance was once related to me where a car-load of frozen apples was unloaded into a river in mid winter, from the supposition that they were worthless. Later, some of the barrels were rescued from the water, and the fruit was found to be in excellent condition. The ice water had extracted the frost so slowly from the fruit, that no permanent disorganization ensued. Frequent freezing and thawing has been shown to be far more injurious than a single exposure to frost, though the freezing in the latter case may be much more severe. This further explains the beneficial effects of a slight covering of non-conducting material. The affection known as "sun-scald" of apple and other trees on the southwest side is probably due as much, if not more, to frequent freezing and thawing in winter, as to the heat of the sun in summer. Our clear atmosphere and bright sunlight are favorable to great vicissitudes of temperature in the latter half of winter. It frequently happens that the thermometer registers several degrees below zero at 7 A. M., when by 2 P. M., of the same day, the snow or frost will melt on the south side of buildings.

In such a climate it is probable that cambium of thin-barked trees like the apple freezes and thaws many times during the winter in the part most exposed to the afternoon sun. The results of recent experiments offer hope that a simple protection of straw or a screen made of lath placed about the trunk of the tree will effectually prevent this trouble.

THE BLACKENING OF THE HEART WOOD

Of the apple and other fruit trees during severe winters appears to be a chemical effect due in some unexplained way to the influence of the cold. It commences at the center of the trunk and extends outward through the medullary rays. In extreme cases the blackening reaches the cambium, when the bark separates from the wood and the tree dies. In less severe cases, the tree is enfeebled, but may recover if the succeeding winter is

favorable. A tree thus affected should not be pruned, since its buds expand feebly at best, and its whole leafage should be preserved.

The trunk of the apple, oak and other hard wooded trees sometimes split open from the bark nearly to the center in severe winter weather. This is due to the unequal contraction of the wood at the outside and at the center of the trunk in consequence of a difference in temperature. The center, being in communication with the deepest roots, receives considerable warmth from the earth, while the outer portion, which is directly exposed to the atmosphere, becomes very cold, and contracts in proportion. If the shrinkage thus produced is greater than the elasticity of the wood can accommodate, a fracture must take place. The effects of such splitting are not often serious, since the vent usually closes on the return of mild weather, and is healed over by the following season's growth.

TOPOGRAPHY AS AFFECTING TEMPERATURE.

Though perhaps not strictly included in my subject, the relation of topography, by which I mean the comparative elevation or depression of any given plot of land, to temperature, is of the utmost importance to the fruit grower in a cold climate. The lowest temperatures are generally reached in a calm atmosphere because the air tends to become stratified with reference to its temperature when not disturbed by winds. The result of this process of stratification is that the coldest layers of air collect in the deeper valleys. Gradual currents of cold air flow down the slopes of hills, while counter currents of warmer air return at higher altitudes from the valleys to the hill tops. Thus the lowest night temperatures occur in the valleys, while during the day the influence of the sun is most felt in the lower basins in consequence of the shelter afforded by the hill-tops. The result is that the valleys undergo much greater vicissitudes of temperature than do the hill tops, which explains the fact, demonstrated by abundant experience that the most favorable exposures for orchards are the summits of hillocks. Despite the discouragements of our inhospitable climate, it is a source of comfort to observe the pecuniary rewards reaped by our heroic pioneers in fruit.

DISCUSSION.

Mr. Lloyd — Would protection prevent black heart as well as sun scald ?

A. I think not.

Q. Does black heart result from injurious pruning ?

A. I doubt it.

A. L. Hatch — Would you prune a tree if it was black hearted ?

Prof. Goff — I would not until it had recovered its vigor.

Q. Would it not be advisable to prune to check black heart ?

A. I think not.

Q. I think you said you preferred the summit of a hill to the valley?

A. Yes, I do.

A. L. Hatch—Some one asked if taking off a dead limb would not make the tree black-hearted, now the question is when is the best time to make the wound?

Prof. Goff—I would prefer not to cut off too much live wood with it.

T. S. McGowan—Do you know of any preparation being used to prevent black heart?

A. I do not.

T. S. McGowan—I want to tell you my method. I rim out all diseased portions and fill in with brimstone or plaster paris, anything that will keep out the moisture.

J. C. Plumb—A tree on the hilltop will ripen its wood for winter but in alluvial soil it will not. You would place inherent nature first, would you not?

A. I would.

J. C. Plumb—I am glad to hear this paper from Prof. Goff, because it contains fundamental truths.

Adjourned.

WEDNESDAY, P. M.

Joint session with Wisconsin Bee-keeper's association.

At a special meeting of the executive board, held Wednesday afternoon, at which eight members were present, the subject of arbor day was considered; the celebration of the day, and the program to be observed by the public schools of the state, a uniformity of which was recommended.

Moved and carried that James Currie, Milwaukee, be added to the committee on program for arbor day celebration.

Moved and carried that the secretary be authorized to formulate a constitution for local horticultural societies.

The best method for securing delegates to our summer meeting was discussed.

Moved and carried that the same plan as the previous year be adopted regarding the payment of the actual expenses of delegates to the summer meeting.

The question regarding the sending out of transactions and the matter of postage was fully discussed.

Moved and carried that the secretary send out the volume on application and that he insert a printed slip stating that our state makes no appropriation for postage.

Moved that a directory of fruit growers be published in the next volume wherein any fruit grower in the state may have his name and address inserted by the payment of one dollar. Adopted.

The financial outlook was discussed, and whereas the business of the

society has nearly doubled in the past year it was moved and carried that we ask the legislature to increase our appropriation to \$2,000.

Adjourned to evening session.

WEDNESDAY EVENING.

Report of committee on awards was made and adopted.

J. C. Plumb suggested that name of plate receiving premium go on record.

Report of Resolution committee read and adopted.

Secretary moved that J. C. Plumb be appointed to prepare a memorial of the late Charles Gibb. Carried.

Report of committee on Finance read and adopted.

A. L. Hatch — The committee on legislation has not had a session or taken any action on its work and I understood there is a bill before the legislature to repeal the law on rabbits, and as they are a great pest to fruit growers I suggest that some action be taken thereon at this meeting.

Moved and carried that it be referred to the committee on legislation.

J. C. Plumb — When I used to travel over that Waupaca country, Mr. Gibson's home was where I always stopped and I think he could tell us something of interest with regard to apple growing.

Hollis Gibson — Most of the trees are alive.

Q. What kind of soil have you in that section.

A. A clay soil on the ridges.

Q. When were those seedlings started that have succeeded so well?

A. My seedlings were planted in the fall of 1853; some others were started in 1850; the soil is boulder clay.

J. C. Plumb — What of the chestnuts near Weyauwega?

Mr. Hardin's trees are alive and nearly a foot through, the trees are over thirty years old. I have trees growing on my own ground that are perfectly hardy, but have not fruited yet. Mr. Gibson said they were not hardy at his location.

J. C. Plumb — I have drawn these questions out because they have something to do with the growing of that grand show of apples.

Report of Experimental Station committee. Articles of agreement were read by the secretary, and the report of the first station, Sparta, M. A. Thayer, superintendent, was read.

Second station, A. L. Hatch, Ithaca, superintendent.

Third station, F. A. Hardin, Weyawega, superintendent.

Report of Prof. Goff.

Q. What is the comparative merit of the three different stations?

Prof. Goff, — Mr. Hatch's is the most favorable, it is the highest. Mr. Hardin's is the next and the one at Sparta the most unfavorable, especially for apples. It is a fact that I have been trying to raise some seedlings of our own and have kept them true to name. We have some other ex-

periments going on at our own experiment station (University Farm). I am cultivating some varieties of prunes for the purpose of grafting our plums.

Secretary — We did not consider the station at Sparta the best for apple trees, because it is so cold, and I suppose we shall gain experience by some of the failures.

J. M. Smith — I am making a trial of Russian cherries and will report from time to time without any expense to the society.

F. K. Phoenix — I would like to hear the size, how they are growing, etc. How long have you had them set?

A. One year, and have had some bloom.

F. K. Phoenix — I presume the Russian cherries came from Mr. Budd of Iowa, and he recommends very low heads. I throw out this thought for those interested in growing them. I hope, if any fruit this year, that the seeds will all be planted for trial. It ought to be hammered and driven into everybody that we should try the hardy varieties. Our fathers grew all the host of fine varieties of fruit from seedlings; they brought the seeds here and planted them and raised their apples from them; grafting was not known away back in those days, and we shall not have anything worthy of our efforts if we do not manage in the same way.

President — We would be very glad to have any member report whatever he has of worth.

J. C. Plumb — I want to report what I saw at Charles Patton's (Iowa). I said to him, I want to see your plums; I saw them, and not one of them shows any merit, in my opinion; the cherries were very much better; the Wragg cherry was the best. I am glad to see this experimental work, but I expect many a dark shadow will come over it. It is going to be a long, hard race. I want to see this work pushed. I would like to see a station established in Taylor county. It is better for us to make a trial of two or three varieties that have some promise of being what we are looking for than to experiment with twenty or thirty; therefore my advice is to go slow.

G. J. Kellogg — We have started out rather late in this line of work, but I am pleased with the three stations started. The Minnesota stations are far ahead of us; they have been a long while at it. I would like to see the principle of top-working made a trial of at the experimental stations. I hope you will try stocks already grown and top-worked.

Secretary — I think it is due from this society to extend a vote of thanks to all those who have donated stock to the experimental station. Motion for a vote of thanks was made and carried.

Motion made and concurred in that Edgar Saunders and H. F. Thurston, representatives of Chicago papers be invited to take part in our discussion, and that they be made annual honorary members of our society.

Mr. Saunders — This question of experimental work, resolves itself into one thing, that if any good comes of it, it will be for the benefit of others.

It is my strong belief that these five varieties of apples adopted, come from seed from first-class fruit from the old countries.

To illustrate how great industries sometimes have small beginnings, take the business of the seedsmen in this country. Grant Thorburn was the first one to start a seed store; he used to make head nails. He was thrown out of employment and had to do something for a living; he started a little store and got a few plants and seeds to sell. And out of so small a beginning, has the vast enterprise grown.

J. C. Plumb — I wish there was a farmer in every township who would do a little amateur work; learn to top work and let the children learn it also.

F. K. Phoenix — If I was an experimental station man, if I did not do but one thing, I would save and plant the seeds, because that is the way to get hardy stock.

Chas. Hirschinger — I do not expect to look back to the seedlings. I believe that we will find what we are looking for among the Russians. I shall try seedlings that I know are good, but we do not need twenty varieties.

Prof. Goff — I think there is more solicitude on this question than is really necessary. Nothing has been put out for trial at any of the stations that has not already been tried elsewhere and found possessing merit worthy of further trial. I would like to go over the ground Mr. Phoenix has taken and emphasize the question of planting seedlings, for I think that is the way we are going to get what we are looking for in the line of hardy fruits.

Adjourned.

HORTICULTURAL ROOMS,

THURSDAY A. M., Feb. 5.

Convention called to order by President Thayer.

The Columbian Exposition was the first order of business.

J. C. Plumb introduced a resolution and read a schedule prepared by Michigan State Horticultural Society.

Resolution adopted.

T. T. Lyon — I am not here as a representative of the Michigan Horticultural Society, merely, but of the Pomological Society. The statement has been made that the person who drew up the schedule is at the head of horticulture in California, and that is probably why viticulture is placed at the head. The objection that the Michigan society made to this is, that if allowed to go out in this form it will convey impressions abroad — to people of other countries — not at all favorable to us.

J. C. Plumb offered a resolution requesting the board of commissioners to place Parker Earle on the board as superintendent of the department of horticulture. Adopted.

J. C. Plumb introduced the following resolution which was unanimously adopted.

"In the interest of peace and prosperity of our people, and for the hitherto fair fame of our beloved country, we do urge the commissioners of the Columbian Exposition, not to open this said exposition in due form on the Christian Sabbath, and to prohibit the sale of intoxicating liquors on the grounds within its jurisdiction."

Moved and carried that President Thayer be a delegate to Chicago to confer with the board of commissioners.

Prof. Goff—I was requested last evening to say something this morning on insects, but you did not designate what sort of insects you wished me to take up.

I am not an entomologist and my experience is only with those insects I meet in the garden and the orchard. I do not go into the classification of insects in my class room any more than is necessary. My classification is arranged according to the insects that do harm in the juices and those who do harm in the tissues. The insects of the first class are plant lice and the squash bug known as hemiptera. The second class are those that injure our plants by eating them; the first class feed on tissues, the second on juices. Those of the first class cannot be poisoned, the second can, and the first class must be treated with poisons that corrode their bodies. We use the kerosene emulsion which is made by dissolving soap in water and adding kerosene to it; the exact proportions are not necessary. Two gallons of water, two pounds of whale oil soap dissolved in the water and about ten per cent. of kerosene is all that is required. We apply it with a sprinkling pump, or in any other way that is effectual in distributing it over the surface. Another form of insecticide is caustic potash dissolved in water; this is usually used in winter and can be used as strong as we desire. When we notice any new insect that is destructive and how it is working or doing its mischief, we can usually decide how to treat it.

The class of insects that feeds on the tissues is divided into three classes—the leaf eaters, a large class; the class that feed on roots, a smaller class; the third class, a large one, the borers that eat into the wood. We treat them all differently, in some respects. The first class we can treat by spraying, because they eat the leaves. Arsenic and London purple are the most common poisons used. When the foliage is to be used for food we must employ some other poison than one of a violent or deadly nature, and in such cases we use pyrethum powder. Pyrethum is the most satisfactory powder that can be used for the destruction of the green worm of the cabbage. For the currant worm we use white hellebore.

It has been found that London purple is considerably soluble in water, and for that reason is liable to injure the foliage of trees and shrubs. Paris green is not soluble in water and is less liable to injure foliage. Milk of lime is still less harmful.

Q. What is the basis of London purple?

A. Arsenic is the base. It is composed of two compounds; one is arsenite of lime and the other coloring matter. London purple is not always a stable article; it sometimes contains a large amount of lime; lime is used to take up the arsenic, and as lime is cheap it is often used quite freely, although the statement is denied by the agent in this country.

Slug shot is composed of one part Paris green and one hundred parts plaster paris. There is not much difference in the quantity of arsenic in the composition of London purple or Paris green, consequently it does not make much difference which is used.

The class of insects known as root eaters is harder to battle with than the leaf eaters because they work mostly under ground where we can not easily get at them. Perhaps the best method is to trap them. The best way to trap is by the use of Paris green water and fresh clover; they come up to eat the clover, and if not dead when found it is easy to kill them. We can dig up strawberry plants and kill many grubs in this way, but it is an expensive way of killing them.

Mr. Tobey — Out of a fall setting of strawberries set a year ago last fall we had more trouble from the grub than with those set last spring.

Prof. Goff — Grubs are more injurious on old sod. The burrowers, a class that burrow in the trunks of trees, are the most difficult to manage. The best application for their destruction is a solution of caustic soda and soft soap, about equal parts, add carbolic acid and apply it to the trunks of trees. Something can be done by probing the burrows.

A. G. Tuttle — What does the codling moth eat besides fruit?

A — The moth does not eat much of anything but the larvae eats fruit.

A. G. Tuttle — I do not see how anything that does not eat can be poisoned.

F. K. Phoenix — I understand that the curculio can be poisoned by the use of arsenical poisons.

Prof. Goff — I think it is not proving satisfactory and we will have to go back to the old method of jarring them.

A. L. Hatch — Would the caustic preparation you mentioned be safe to apply to young trees?

Prof. Goff — I think so, in the winter time.

F. K. Phoenix — Have you ever applied it to other than apple trees?

Prof. Goff — I have never used it except on apple trees.

A. L. Hatch — I understand that the United States Entomological Society have been importing some insects that are cleaning out all of our depredatory insects, has anything been found that will eat the curculio?

A. — They have been experimenting in that direction and in some instances have been very successful. The egg of the codling moth is deposited in the blossom end of the apple and if a little poison is deposited there the little insect will eat it and die.

A. G. Tuttle — The way I destroy the bark louse is to apply dry unleached ashes to the bark of trees. I have tried it and I have not seen a

larvae for years. Apply it when the tree is a little damp and when no wind is blowing; throw on the ashes and you will destroy them.

A. L. Hatch — I would like to ask Mr. Tuttle if he thinks Baraboo plum growers have a method of handling the curculio so they can grow plums?

A. — A neighbor of mine raised several bushels of plums but I think he jarred the trees. I have, long ago, given up trying to raise plums.

J. C. Plumb — Do you think a remedy that will destroy insects can be put in the trees by boring holes and plugging them up? I know of a man that went around selling rights for five dollars a farm.

Prof. Goff — I think the sap of the tree would absorb such poisons and kill the tree as well as the insects.

T. T. Lyon — Is it not true that the calyx tube of apples in some varieties close up earlier than others and poisons fail on account of not being able to reach the insects?

Prof. Goff — Yes, and often because too late applied; it will not do any good to apply poison after the calyx has closed.

A. L. Hatch — I see that the French are using bi-sulphide of carbon, putting it up in capsules that are soluble and applying it in that way.

Prof. Goff — I have seen that remedy advertised and I will say that it has been tried thoroughly in this country and it was not successful.

Q. Is not the plum curculio working in apples?

A. The plum and apple curculio are nearly the same, though both injure the apple.

J. C. Plumb — What do you think, Professor, of providing protection against the ravages of the curculio, for the apple, by surrounding with plum trees?

A. I believe Prof. Cook advises that.

G. J. Kellogg — Could you spray for the curculio in the spring before the buds start and catch him then?

A. I have never practiced spraying so early.

Q. Can the leaf roller be poisoned?

A. We cannot reach him because he is rolled up in the leaf.

Mr. Seymour — What sort of a force pump do you use in spraying and where can it be obtained?

Prof. Goff — We have a few good ones but it is difficult to say where the best can be obtained. Much depends on the nozzle as well as on the pump.

T. T. Lyon — I found it impossible to apply poison to strawberry plants because the leaves were rolled up so tightly. I sent a man through to crush them and it was effectual.

Prof. Goff — You could do that on the strawberry but not on the apple. In case of large apple trees I like the nozzle called the "boss" nozzle because it will throw a stream higher up.

Mr. Jeffries — What pump would you recommend?

A. Nixon No. 2 for hand pumps; there are other pumps on wheels and also on wagons. The use of the spraying pump is extending in horticulture, and we are using it for fungicides as well as insecticides. I hope we shall soon be able to produce a mixture that will be successful in case of fungicides and insecticides as well.

A. L. Hatch — The use of the pump for fungicides is extending to field crops as well as for grapes.

Henry W. Ash — In a few moments I shall be obliged to leave, and I wish to express my thanks for the hospitable manner in which I have been received and for the lessons I have learned, and I cordially invite you to come to Iowa and see us.

The following paper on Originating New Varieties of Plants was read by A. M. Ten Eyck, university student, Madison, Wis.

THE ADVANTAGES OF NATIVE OVER FOREIGN VARIETIES OF CULTIVATED PLANTS.

By A. M. TEN EYCK.

At the meeting of the American Association of Agricultural Colleges and Experiment Stations last November, Prof. Green, of the Ohio Station, in his report, made the broad assertion that "A good variety of fruit is good always and everywhere." If this is the case, our experiment stations are doing a great deal of useless expensive work in experimenting with varieties in order to ascertain their adaptability to the soils and climates of their respective states.

Perhaps Prof. Green is mistaken. If he really means what he says, he must be. That varieties of fruit under cultivation vary in productiveness, quality and hardiness in different soils and climate is a fact generally admitted. No two experiment stations agree entirely in the varieties which they recommend for cultivation. But aside from the practical examples which might be given to disprove the above statement, we learn from a study of the origin and development of plant varieties that a variety of fruit or any other plant should not do equally well everywhere and why it should not.

PRIMITIVE TYPES.

In tropical countries, the wild luxuriance of vegetation is so varied and abundant that there is no need for effort on the part of man, and cultivation is an art little practiced. But in the temperate climates nature wears a harsher and a sterner aspect. She is here not prodigal of perfections. Vegetation is less abundant. Fruits are meagre. Compare with the plantain, banana and nutritious bread-fruit of the tropics, the wild crabs, wild cherries and wild grapes of our own climate. "Yet these native fruits

which offer at first so little to the eye or palate are nevertheless the types of our garden varieties." Destined in these climates to a perpetual struggle for food, we find man transforming and improving nature's methods.

"Transplanted into a warmer aspect, stimulated by a richer soil, reared from selected seeds, carefully pruned, sheltered and watched, by slow degrees the sour and bitter crab expands into a Golden Pippin, the wild pear loses its thorns, the almond is deprived of its bitterness, and the dry and favorless peach is at length a tempting and delicious fruit." Out of 247 species of cultivated plants M. Decandolle has succeeded in finding the wild forms of 193 species. Of the remainder, 27 he considers doubtful, as half wild, and the rest he has not as yet been able to find in the wild state. Darwin holds that in these cases the cultivated plant has either changed so that its wild prototype can no longer be recognized, or that the original form has ceased to exist.

DIFFERENT FORMS DEVELOPED FROM ONE TYPE

From a single, comparatively valueless, primitive wild form then, have originated in the course of time, thousands of valuable varieties of cultivated plants, all differing from the original, and some to such an extent that they cannot be recognized. As an example of variation from one type, take the cabbage. The wild plant, resembling the Kale, grows native along the European shores of the Mediterranean. From it, we have the large shrub-like plant, twelve to sixteen feet high, grown on the island of Jersey, and used for canes; the single head cabbages, varying greatly in shape, size and color; the cauliflowers, the savoy, a less known race, the kohlrabi, with their stems enlarged into great turnip-like masses above ground, and a more recent race, resembling the kohlrabi with the enlargement beneath the ground.

Corn or maize has varied in an extraordinary and conspicuous manner. The different races vary in height from fifteen to eighteen feet to only sixteen to eighteen inches. The size of the ear and its seeds varies in like manner, and the ripening season, from six to seven months, in southern latitudes to three and four, in colder climates. These examples will serve, in some degree, to illustrate the amount of variation. But what is the cause of it.

ORIGIN OF VARIETIES.

Consider the thousands of varieties of roses, pansies, pelargoniums, of potatoes, strawberries, apples. How do they arise? What process of development has produced from a single type, these numerous and varied forms? The characters of plants are transmitted to their descendants, are hereditary. But in addition to inherited properties, new characters may arise in some of the descendants of a plant, which were not possessed by the parent, and it is this characteristic, this tendency to vary, which seems to be common in all plants, that has resulted in the existence of so many varieties.

The new characters which arise may not be transmitted at all, and nearly always are only partially hereditary, the new form making its appearance only in a certain proportion of the descendants. This proportion becomes larger from generation to generation, the new character becomes more and more constant and finally fixed. Selection is the process by which new varieties are fixed. It is the only real process of improvement. Artificial crossing is in fact, only a means to induce variation, with a view to promote the development of new forms. Selection is always the final process by which the new variety is established.

CAUSES OF VARIATION.

There are various reasons given for the cause of variation in plants. The late Prof. Asa Gray believed that "variation has been bad along certain beneficial lines," like a "stream along definite and useful lines of irrigation." This would imply that each particular variation was, from the beginning of all time, pre-ordained by the Creator.

Sachs considers that "in the cross fertilization of different individuals, towards which there is always a tendency in nature, we have a perpetual cause of variation in plants." It is not due to external influences, because "under the same conditions of cultivation the most different varieties arise simultaneous or successively from the same parent form," and also "seeds from the same fruit produce different varieties."

Darwin, although he admits that cross-fertilization of distinct forms increases the tendency to vary, concludes that variation is due principally to "conditions to which the plants or their ancestors have been exposed." "Wild plants introduced into cultivation are more variable at first." Even the "seeds from the same pod are not subject to exactly the same conditions." Some receive more nourishment than others. They do not all ripen at the same time, etc.

Summing up the various opinions, we come to the conclusion that the reason why plants vary is unknown. Some of the conditions which affect variation are known, but why they affect it is not known. Scientists agree only on one point, and that is that plants do vary.

HOW PLANTS VARY.

Plants vary along certain lines. Cultivated plants have varied in the line of their use. The numerous varieties of fruit trees of the same kind differ very little, in general, in their roots, leaves, flowers and stems, but to an extraordinary extent in the size, shape, color, smell, taste, period of maturity and keeping properties of their fruit. In garden flowering plants on the other hand, the flowers differ much in shape, size, color and odor, but the seeds are all alike.

We cultivate the fruit tree for its fruit, the flowering plant for its flowers, *i. e.* for particular characters. And if these characters vary, or are more strongly displayed in descendants, the plants are propagated and the

variation is preserved. Other characters of the plants also vary, but are disregarded because of no use to man, and so we find variation in one character prominent.

WILD PLANTS.

Darwin has shown that wild plants vary along certain lines. In their "struggle for existence" only those individuals are able to maintain themselves which are best able to resist the prejudicial influences to which they are exposed, that is those best suited to surrounding conditions, and only such varieties will reproduce themselves and further develop their special properties. Varieties and species which are not endowed with qualities to endure the struggle for existence perish. As the cultivator develops that which is best suited to his own purposes, so in the struggle for existence only those varieties survive and reproduce their kind which are better adapted through some property they possess to endure the struggle.

By this natural selection, plants become even better adapted for the purposes of self preservation than cultivated plants are for the purposes of man. Our noxious weeds will serve as an example. Not only do they vigorously sustain themselves in competition with other plants, but it requires the united efforts of men, supported by a weed law, to keep them within bounds. Every wild plant is very accurately adapted to the conditions and circumstances in which it grows and is reproduced. Its organs have the shape, size, mode of development, power of movement, etc., needful for this purpose. If they did not, the plant would inevitably perish in the struggle for existence.

APPLICATION OF FACTS.

We have learned that plants vary in all their characters, but that, in the case of cultivated plants, only those variations are preserved which are of use to man, in the wild state, only those which are in harmony with the surroundings. In no two countries, perhaps, in no two sections of one country or of one state are the plants subject to exactly the same conditions. One section may have a slightly different soil, a little more dry weather, and the plants of this section vary to adapt themselves to these conditions. If a plant is removed from its native place and planted in a different part of the world or country, it is placed at a disadvantage, it is exposed to new conditions to which it is not suited. Thus we can understand why a good variety of fruit does not always give as good results in all places. And we would expect a variety of plants originated from the native plants of a certain region to do best in that region.

CULTIVATION OF NATIVE FRUITS, RESULTS.

In this respect, we have slighted our native fruits. In the old world a class of fruits have been developed, which for thousands of years have been adapting themselves to the soil and climate of that country. We have sought to reap at once the benefit of that long process of improve-

ment, by removing these fruits to our land and its widely different conditions, with many failures. The foreign grape we have abandoned. In its stead has sprung up a multitude of vastly improved varieties of native grapes. Our raspberries, blackberries, strawberries and gooseberries of native stock are fast superceding foreign varieties. "The best authorities now agree that American trees are the best for America." In every case, the best improved native varieties of any tree or fruit surpass the best imported ones.

Prof. J. L. Budd, of Iowa Agricultural College, says* of our native plums: "Nearly every neighborhood has its varieties. Among those best known are the DeSoto, Wolf and Wyant. It has been truthfully said of these varieties that they have fruited in certain localities for a quarter of a century, without the total loss of a single crop, while others have failed. They are gaining favor with fruit-growers on account of their perfection of foliage, hardy fruit buds and relative exemption from rot and injury from the curculio."

In regard to last season's fruit crop, Prof. L. H. Bailey, horticulturist of the Cornell University Experiment Station, says in Bulletin 14, issued by that station: "The apple crop is almost a total failure. Peaches and plums are few. Pears are probably less than half a crop, and quinces range from small to fair in various sections. Raspberries and blackberries have yielded indifferently. Only the stawberry and grape crops are satisfactory."

Last season was an exceptionally poor one, but the results speak favorably for our native fruits. Apples, a total failure, not a native variety cultivated — only grapes and strawberries satisfactory, nearly all native sorts — raspberries and blackberries indifferent (due partly, perhaps, to neglected improvement of native varieties). The farmer who wishes to purchase pure bred stock will not buy of his neighbor at home, but of some distant breeder. The same is true of the fruit grower. The glamor of a foreign name and the deceptive haze of distance keeps the foreign varieties in cultivation and prevents the improvement of native ones.

PROSPECT FOR IMPROVEMENT.

Improvement is only just begun, but facts and experiments show that America's native fruits will furnish varieties equal to those of the old world, with the great advantage that they will withstand our climate and prejudicial influences. The grape, plum, and a few berries, have been domesticated. Probably we have other fruits and plants, not yet introduced into culture, that may, with improved cultivation and careful selection, be made to produce varieties beyond conjecture. Only a few years have been spent in improvement.

The grape has reached its high stage of development since 1845. The same broad road to improvement is open in the case of the cherry, and es-

* Report Mich. State Horticultural Society, 1888, Our Native Plums, p. 47.

pecially the apple. Col. C. L. Watrous, president of the American Association of Nurserymen, in an address at their annual meeting of 1888, made the prophecy, "That before the close of the lives of many present the common and universally propagated varieties of the apple throughout the great northwest will be the descendants of the native crab apple."

There is work to be done. The improving process is too slow and expensive to be successfully undertaken by the individuals alone. The task belongs properly to the experiment stations. Each station should endeavor to improve the plants best suited to the state. Horticulturists are constantly taking more interest in the work, and we may hope before many years for wonderful results from their labor.

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DISCUSSION.

A. L. Hatch—I have been very much interested in this paper; it has exceeded my expectations and shows much thought in its preparation. There is one point touched upon that I do not think has ever been carried out, that is the principle of not taking foreign varieties, but keeping one variety and continuing its cultivation and improvement.

A. M. Ten Eyck—There is a man in France who saves seed and plants it, and by preventing cross fertilization keeps it pure.

Prof. Goff—We practice that plan with vegetables, but with apples it is more difficult to do so, because they cross fertilize more easily. The hardness of northern grown seeds is superior to southern grown. The McMahon's White is hardy in Wisconsin, while some other varieties are not. The Norway spruce grown in this state will be harder than if grown south.

F. K. Phoenix—It is an accepted fact that seeds are hardier grown in the north than in the south, and we ought not to lose sight of it in making our experiments. I do not believe that any two individuals of the same character, or similar, were ever raised from the same apple. I have never seen an instance of it.

Question from program — Is it possible to prevent cross-fertilization? Will varieties reproduce themselves, and if so how far?

J. C. Plumb — Some people have the idea that we shall improve the race by developing native fruits. After planting crab apple seed for thirty years I have yet to know of a single native apple or good crab apple that has come from that line of planting. It is said the Wealthy was grown from seed of the Cherry crab brought from the east, but I do not credit the statement notwithstanding the originator, Peter Gideon, says it is so. The Canada people have left off the term, crab, and say Siberian, instead. I wish we could do so. I believe our relief will come from cross fertilization. We do not get a superiority of the individual, owing to pre-potency of the parent.

Q. Cannot that fixedness that is desirable in the individual become better established by prevention of cross-fertilization, and the pre-potency of the parent in time to be overcome?

A. I think not.

Prof. Goff — It is possible by covering the blossom and fertilizing with its own pollen, to prevent cross-fertilization, but it is practicable only in a small way. Varieties will reproduce themselves if not the result of previous crosses. If a seed be taken from fruit grown on a graft on a tree, the future plant will depend largely on past history. A cross must be fixed by a long period of careful selection; a tomato, for instance, will require five years before a variety becomes permanently fixed in type.

J. M. Smith — Is it possible to cross potatoes by planting tubers of different kinds in the same hill? I have heard it so stated but have never credited it.

Prof. Goff — It cannot be done, sports will occur but not a crossing; we are likely to have sports from the potato as well as from the plants.

Mr. Saunders — As a rule the longer time a variety has been in cultivation the more tendency there is to broad variation. One gets out a new thing and we sometimes hear of some one else, in another part of the country, getting the same thing.

F. K. Phoenix — Mr. Saunders, do not roses grown from sports finally revert to the original plant?

Mr. Saunders — No, sir, they do not usually do so, although there may be instances in which they do. The nectarine is always a nectarine although it was originally a bud variation.

Q.—Prof. Goff, is the idea advanced by Mr. Saunders corroborated by your observation?

A.—It is.

Mr. Saunders — Fixedness comes from certain varieties; some will not stand with you while others will go on indefinitely without change or reverting to the original stock. There are some interesting instances related of plants grown in pots; one example came out of a certain plant propagated by roots, the rooted plants reverted back while the cuttings

were the same as the original plant; the cause of its so reverting was because it was not fixed in its character when sent out.

J. M. Smith — Prof. Goff, what part of bones is lost by burning them?

A. The nitrogen, the best part.

Adjourned.

THURSDAY AFTERNOON.

Convention called to order by President Thayer.

Motion made and adopted that the programme for the summer meeting be prepared by the secretary.

J. C. Plumb — We have with us Mr. Lyon who wishes to present the subject of pomology.

T. T. Lyon — I think I have remarked somewhat upon some points of this matter previously. The facts will be readily recognized by all that the Division of Pomology is somewhat novel and at first its movements were somewhat restricted, by being narrowed to a small circle in its operations. There seems to be no better way in which to meet its needs than to appeal to state societies: therefore the Pomological Society has requested me to meet the state societies when convened in annual meeting. There is no possibility that any adequate work on the subject of pomology can be published that will be in any way remunerative. The Division of Pomology has been gathering up catalogues published by the different nurserymen, and design publishing a list of synonyms and names that can be sent out broadcast over the country under the frank of the Division. Any person wishing to identify a certain fruit under these names has now no way of so doing, and it is proposed to publish a short description of the varieties of fruits in connection with the name.

These books cannot be published in sufficient numbers to send out to every one; a copy can only be furnished to the members of the Pomological Society, but this society has in view the object of benefiting the general public by being enabled to send them out broadcast. Pomology has an interest in its relation to Horticulture, so also has Forestry; these societies publish bulletins that can be sent out under the frank of the Division of Pomology or the Department of Agriculture; out of all these, and others I have not mentioned, may come methods that may strengthen and secure members.

The Division would ask of the state societies that they may collect information and send direct to them instead of sending it hap-hazard or from single members. Just before I left home I wrote to the chief of the Division, Mr. Van Deman, what had been gathered up from different states and I asked him if it would not be possible to bring about some means to obtain the desired result, and out of all, elaborate some method by which the Division may furnish some information that will be useful to all.

G. J. Kellogg — I am in favor of aiding all we can as a society, individ-

ually and collectively and I understand that the work is going to be put in shape so we can get at it.

T. T. Lyon — The Division is preparing to make wax specimens of fruits for the Columbian Exposition for the purpose of identifying fruits when out of season. They have secured the services of Col. Brockett who did so well at the Paris exposition in that direction, and he intends to gather different specimens of the same varieties from different sections so as to show the tendency to variability. The address of Col. Brockett is 2307 Indiana Ave., Chicago.

G. J. Kellogg — I wish Mr. Lyon had given us this information before our tables had been stripped; we had some very fine specimens on exhibition.

J. C. Plumb — I want to explain that all specimens of fruit must be perfect as any indentation in an apple will show in the wax, consequently the gathering must be done early in the fall.

Secretary — The question of our summer meeting should be considered.

Moved and carried that the location of summer meeting be left with the Executive Board.

A. D. Barnes moved that the next annual meeting be held at some other point than Madison.

A substitute to this motion was made and carried that it be left with the Executive Board for decision.

J. C. Plumb presented the following resolution:

Whereas, Mr. T. T. Lyon, of South Haven, Mich., representing the Division of Pomology, United States Department of Agriculture, has presented the desire of that department to enter into closer relations with the several state societies, for the purpose of advancing the great interest of pomology.

Therefore, be it resolved, That we hereby endorse the work of the department, as presented by Mr. Lyon, and instruct our recording secretary to communicate and co-operate with said department in all matters pertaining to the horticultural interests of this society.

Adopted.

Adjourned.

ASSEMBLY CHAMBER,
Thursday Evening.

Joint session with agricultural society.

President Thayer in the chair.

Opened with music by the University Glee Club. The hearty encores of the audience were responded to by a second and third song.

ADORNMENT OF SCHOOL GROUNDS

BY PROF. J. W. LIVINGSTONE, SPARTA.

That the school-grounds should be made the most attractive place possible, instead of what they usually are, has long been incorporated as one of the essential articles of my pedagogical creed. To every man that asketh a reason of this faith that is in me, I give this answer:

First. Man's taste and character are in part fashioned by his surroundings. Surely the nakedness and dreariness of the average school-yard must stunt rather than stimulate a love for the beautiful; while the better tendencies of head and heart draw new life from environments marked by purity, taste, and refinement.

Second. Beautiful surroundings render the school itself more attractive and serve as a silent reminder that the rooms should be kept neat and inviting.

Third. Increased interest on the part of pupils means added interest and readier aid on the part of patrons.

Fourth. To enlist the boys and girls in improving and ornamenting the school-grounds cultivate that *esprit de corps* which makes them more loyal to the school and all its interests. They realize too some of the blessedness of helping make things go. Will not this public spirit, cultivated in their little republic later on lead to loyalty in the broader citizenship of community state, and nation?

Fifth. A beautiful school-yard in a village or town means improved home yards and better kept lawns.

Sixth. To children whose parents have neither time nor means to provide their homes with things of beauty such a yard is a joy forever no matter how humble the home, it gladly greets every effort to cheer and brighten the life of its children.

The growing interest in the ornamentation of school-grounds is evidenced by the institution and observation of Arbor Day. About eighteen years ago, the governor of Nebraska issued a proclamation for the observance of a day of tree-planting. It is said "That the sun set on a rising generation of twelve million of trees where in the morning had spread the last remains of the "American Desert." This child of Nebraska has become a general favorite in the sisterhood of states. Thirty-six states and territories annually call for the observation of a day in the adornment of public squares, thoroughfares, church-yards, and school-grounds. Who can estimate how much this work is doing to render the homes of the coming generation more wholesome and happy?

Ten years of persistent, patient work have produced some results and some experience that may prove suggestive. I shall describe the Dodge-

ville School yard, and briefly note some of the means we employed to make the improvements.

The building is a brick structure, faces east, and has in front an acre of ground in the form of a square. A broad walk extends from the front door half way down and then branches diagonally to each corner. From each side of the front door a walk extends around the building.

The first thing was to secure some trees from the neighboring woods. These native trees are far better than the more fancy and more tender ones procurable from the nursery. They are more hardy, grown better, last longer. One can select trees of good form. They can be transplanted promptly and carefully; hence trees very much larger than those from the nursery, may be taken with safety. Thus, fully five years growth may be saved in hard wood trees, and the desired beauty and utility secured that much earlier. Our tree favorites are the elm, the hard maple and the linden. Each has naturally a handsome form, as well as beautiful foliage. If the soil is suitable, a lordly pine should have a place. About a dozen trees furnish all the shade needed, without injuring the grass.

The beauty of the sod must be preserved, for it is the real setting of the whole. The lawn was made according to directions found in a book on gardening. A thin coating of land plaster each spring, many times repaid its cost by the increased richness of coloring and rapidity of growth quickly seen in the velvety carpet.

A hedge of arbor vitæ was run from each corner of the building to cut off the back yard. The north wing of the building is set some twelve feet back from the front line of the main part. This left a triangular piece of ground between the building and the walks. The angle formed by the building is just north of the tower. In this shady nook we built a rockery of white spar and filled it with ferns from the woods. Around its base is a bed of fuchsias bordered with sweet alyssum, which looked very pretty against the green and white background. Near the center of the triangle was a bed of choice roses. Planted near the rockery and close to the wall is a Virginia creeper, which reaches now nearly to the eaves, and forms for six months each year, a handsome drapery of foliage. A Queen of the Prairie rose near by, stands almost twenty feet in height and bore two summers since, over five hundred roses. When well fed with a fertilizer, this old favorite blooms abundantly and sends up strong new wood for the following year. Near the corner of the building are a clematis jackmani and a clematis candida. These hardy varieties flower freely — often when at their best, the foliage is fairly hidden by the profusion of showy blossoms.

On the main part of the building is another Virginia creeper. Each year some rapid and strong-growing annual was planted near the door. The cobeia scandens won our favor on account of its rapid growth, fine foliage, and large bell shaped flowers.

The flower beds on the lawn are each about four and one-half feet in

diameter. Two of these are usually beds of showy geraniums as nothing has proved more satisfactory. A bed of coleus or some bright and steady-blooming annual is attractive, but our favorite was a bed of choice pansies furnished the school by the Wisconsin "Pansy King," Brother Toole of Baraboo.

There were also several rustic-baskets and four large iron vases. A very durable and attractive basket is made as follows: Get a kerosene barrel, cut out about six inches of the middle and thus make two good sized tubs. Give them a coat of dull paint and then cover them with tolerably straight branches running parallel to the staves. The sticks should be about an inch in diameter, and should retain their bark, put these so that the outline of the tub may have a *serrate* form on both top and bottom. Trim with wild grape-vine and give the whole a coat of oil, or else a coat of dark brown paint. Set the tub on a post about eighteen inches high, and weave around the stump some large strong grape-vines so twisted as to form a good broad base. The vines will twist into almost any shape if cut while the sap is in them. Another very neat basket is made in a similar way by cutting the top of the tub in scalloped form, and then neatly cover with cedar bark.

I must not forget, however, the thing of most interest to the little people. It is a large rustic bird-house on a twenty-foot walnut pole. This is the summer house of the blue-birds and martins, to which they receive from the children cordial welcome every spring.

In Sparta the outlook for an attractive yard was rather discouraging. The high school is set upon a knoll of sand which looked bare and unpromising. However, there were some handsome elms and oaks; and the natural slope from the building was well-suited for a lawn — if the grass could only be coaxed to grow.

The matter was quietly agitated among the boys and girls, and they were soon enthusiastically in favor of improving the grounds. The boys of the graduating class took a twenty-five dollar job and turned the proceeds into the decorating fund. Pupils and teachers soon gave all the money needed. A citizen, who was excavating a large cellar, donated fifty loads of good soil. Sand holes were filled; the grade in front of the building was improved; a large surface was neatly sodded; the rest of the yard was treated to a liberal coating of land plaster and ashes, and then grass seed was raked in. Three large iron vases were purchased and several rustic baskets were made. An abundance of basket and bedding plants were procured from the La Crosse greenhouses.

On Saturday there were plenty of willing hands to sift the soil, to help make flower beds, to set up rustic baskets, to rake up and wheel away refuse rubbish, to dig up plantains and dandelions.

Soon the yard presented an improved appearance and attracted the attention of passers by. The chronic croaker leaned on the fence long enough to watch the work and to encourage with the assurance that those

plants would soon be stolen or destroyed and that our labor would be wasted and the bare sand-bank would again come to the surface. Remembering the failure of the like dire prophecies from the croaker's brother who lives farther south, his words were unheeded. The appearance of the smoothly shaven lawn, the neatly trimmed trees, the handsome flower beds and the rustic baskets were a summer's joy. Some of our plants are being "wintered over" by pupils and friends who have plants of their own. With this nucleus for the new season the Sparta young people expect to go on with renewed hope and make their school grounds handsomer than before.

"But all this costs money, time and patience." Yes, *all* these, but the investment pays large dividends. To note the educative influence on the children, to observe the effect on the home yards, to find that the very roughest boy will carefully protect the flowers from injury, to see how proud the patrons become of our school yard, to enjoy the wondering surprise of the stranger when told that no plant is ever maliciously injured or stolen, to realize that such a yard proves an effective object lesson to some fellow workers — these are *some* of the returns.

To the teacher looking at the dreary barrenness of the average school yard, or with pain noting the marks of depravity that too often mar school premises, discouraging indeed is the outlook. But a bed of bright flowers greeting the eye with beauty and filling the air with fragrance — a single vine whose drapery gives to the bare walls grace and comeliness, must prove the beginning of better things. As the famous Eucalypton tree, planted in the marshy soil of many a malarial region, has cleansed the air, so may a few trees planted amid this dreary barrenness help to cleanse the moral atmosphere and render it more wholesome, helpful and bracing.

At any rate, a purpose to brighten and beautify the school grounds will always meet with words of kindly encouragement; and an attempt once inaugurated will ever find cheerful helpers.

DISCUSSION.

President Thayer — It has been our custom to invite criticism or remarks upon papers read at these sessions and we invite you, to-night, to participate in discussion. The Wisconsin State Horticultural Society has laid out a large amount of work for the coming World's Fair and we are also preparing to celebrate Arbor Day.

A. L. Hatch — The paper is so good that we do not like to detract from it by any remarks.

Gentleman in Audience — The farmer, I believe, is given the privilege of thinking twice, and this paper, so beautifully written, carries me back to the years of my childhood and the school-house where I attended school forty years ago, where thirty-five children attended school. Compare that

with the present school-houses where our children go. Ought they not to improve? And do they any faster than we did when we went to the little school-house forty years ago and turned our backs to the red hot stove? A thought comes to me that we farmers might have the money for improving our school grounds, that is now used for district libraries which are a nuisance, for books are so plenty without them, and so cheap, that "he who runs may read."

Secretary — I want to tell you there are some school grounds in our state that are really beautiful, and we wish to do more in that direction. A committee has been appointed by the State Horticultural Society to prepare a circular and program for use in our public schools for Arbor Day observance, and I am very glad that able paper was presented by Prof. Livingstone.

A. A. Arnold — During my life I have made a great many mistakes, and I've no doubt many people can look back and see mistakes they have made, but there is one thing I have done, and I hope you will not think me egotistical when I say I do not think I made a mistake. When I first went onto my farm I set out two miles of shade trees. I can tell you those long rows of trees are an ornament, and I am proud to think I put them there. I can set out a tree and make it live. When you set a tree be careful to dig it up without injuring the rootlets, then dig the hole and set a little deeper in the ground than it stood before, then with proper mulching to keep the soil moist about the roots, there will be no trouble in making it grow.

MISCELLANEOUS BUSINESS.

REPORTS OF COMMITTEES, REPORTS OF OFFICERS AND RESOLUTIONS.

REPORT OF SECRETARY.

Mr. President and Members of the Wisconsin State Horticultural Society—In accordance with the organic act of this Society, I take pleasure in presenting this annual report while we celebrate the twenty-first annual meeting of a society which by its work and workers, now takes first rank with sister societies.

A few of the old members who helped to organize the Wisconsin State Horticultural society are with us to-day, and are just as earnest as twenty years ago, when they looked forward to this date. Some have moved from our state and some have passed on where flowers cared for by celestial hands are ever open to their immortal vision.

To the fruit growers of Wisconsin this has not been one of general fruitage, though in some sections the crop of apples, as well as small fruits have been exceptionally good, and prices of apples above the average.

The extreme heat and excessive moisture in some parts of our state, hastened the ripening of strawberries, as well as the great cause of premature decay, as they were forced upon the market. Blackberries and raspberries in some localities suffered some from drouth, while in other locations, with adapted soil and good cultivation, the crop has been up to the average in price and quality.

TRIAL STATIONS.

Early in the spring the committee appointed to take charge of experimental work or trial stations met at the rooms of Prof. Henry, state university, and decided on the plan of work where to locate three stations as well as form of contract between the parties and the state society. While E. S. Goff, professor of horticulture, was to have immediate charge of this work, the stations are to be under the patronage and direction of the State Horticultural Society. April 18th last your secretary, in company with Prof. Goff, visited Weyauwega, Waupaca county, Sparta, Monroe county, and Ithaca, Richland county, where suitable sites were found and contracts drawn up between this society, A. L. Hatch, M. A. Thayer and George Harding, which contracts are for your approval. Prof. Goff has visited those stations and made report at our summer meeting.

SEMIANNUAL MEETING.

The semiannual meeting was held in the court house at Black River Falls, Jackson county, June 26-27, during the time of our most excessive hot weather. The long distance away from many former exhibitors and the hurrying time, picking and marketing fruit, kept some at home who expected to attend this meeting. The citizens of Black River Falls greeted us with generous hospitality and good audience.

*Early in August last I sent out the following circular to nearly 400 prominent farmers and fruit growers in our state.

The replies to these questions have given us a vast amount of information relative to the horticulture of Wisconsin and many of the letters would make, if published, a valuable feature in our volume of Transactions.

As a synopsis of some I present the following as indicative of answers to all. These replies have brought to this office the names of nearly 150 fruit growers who have for the first time received the program of our annual meeting. We are thus put in closer relation to those who are interested in our work. To many of these I have written personal letters.

The clerical work and correspondence has more than doubled during the past year, and the call for our reports is largely on the increase, and judging from letters received, are highly appreciated. This to me is gratifying as showing how we stand as related to other societies, and in some sense expressive of our work and progress in horticulture.

January 8th last, on the request of Warren Gray, of Darlington, I attended the Institute at that place, and during the noon recess assisted in organizing The La Fayette County Horticultural Society. The society adjourned to meet at the court house on January 17th, when they further perfected the organization for progressive work in horticulture.

I am hopeful that with the increased list of fruit growers who have been put in communication with this office, our work may be broadened, and that a number of similar societies may be organized during the coming year.

In concluding this report I wish to thank E. S. Goff, professor of horticulture, not only for the work he is doing at the Station, but for his interest manifest in the affairs of our society. From W. H. Morrison, superintendent of the farmers' institutes and from the secretary of the state agricultural society, both Mr. Newton and Mr. True, I have always received that kind consideration which unites the bond of harmony necessary to advance the agricultural and horticultural interests of our state.

I therefore trust that the work before us at this our annual meeting, will receive our earnest united consideration.

Respectfully submitted,

B. S. HOXIE,
Secretary.

*This circular will be found under the head of "Horticultural Information."

FINANCIAL ACCOUNT.

*Wisconsin State Horticultural Society, to B. S. Howie, secretary:**Dr.*

Postage.....	\$48 00
Printing and stationery.....	30 51
Nursery stock for stations.....	61 89
Express charges.....	11 40
Miscellaneous.....	53 12
Salary.....	300 00
	<u>\$499 92</u>

Cr.

Received on salary.....	\$225 00
Received on expenses.....	176 96
Balance due on salary.....	75 00
Balance due on expenses.....	22 96
	<u>\$499 92</u>

TREASURER'S REPORT.

To the officers and members of the Wisconsin State Horticultural Society:

Your treasurer submits the following report:

Feb. 4, 1890.	Amount in treasury.....	\$188 87
Feb. 5, 1890.	Received of state treasurer.....	500 00
Feb. 7, 1890.	Received of J. M. Smith for excess of voucher No. 7.....	4 45
Feb. 8, 1890.	Received of secretary, membership dues.....	33 00
March 1, 1890.	Received of secretary, membership dues.....	7 00
June 25, 1890.	Received of state treasurer.....	500 00
June 27, 1890.	Received of secretary, membership dues.....	15 00
	Total from all sources.....	<u>\$1,248 32</u>
	Total disbursement.....	<u>\$1,009 60</u>
	Amount on hand.....	238 72
		<u>\$1,248 32</u>

Respectfully submitted,

VIE H. CAMPBELL,
Treasurer.

February 3, 1891.

DISBURSEMENTS.

Voucher No.	91.	Hirschinger, Chas., premiums.....	\$30 00
	92.	Jeffrey, Geo., premiums	19 00
	93.	Peffer, Geo. P., premiums.....	26 00
	94.	Hatch, A. L., premiums	12 50
	95.	Chappel, F. H., premiums.....	5 50
	96.	Gale, Isaac, premiums	6 50
	97.	Ozanne, James, premiums.....	1 50
	98.	Gibson, Hollis, premium	1 00
	99.	Springer, William, premium.....	50
	100.	Converse, D. C., railroad fare.....	1 00
	1.	Gibson, Hollis, premiums for Waupaca Horti- cultural Society.....	15 00
	2.	Haviland, Dora S., prize essay and expenses .	11 19
	3.	Edwards, J. M., account of board bill.....	5 00
	4.	Hoxie, B. S., sec., salary balance of year 1889	75 00
	5.	Hoxie, B. S., expenses of year 1889.....	7 98
	6.	Adams, Miss Nora F., prize essay.....	10 00
	7.	Smith, J. M., expenses.....	42 08
	8.	Kellogg, Miss E., premiums.....	5 00
	9.	Hoxie, B. S., expense account.....	20 00
	10.	Hoxie, B. S., board bill for members.....	46 25
	11.	Parkhurst, V. R., watchman for fruit room .	6 00
	12.	Peaselee, J. B., expenses from Cincinnati, O..	32 40
	13.	Hoxie, B. S., expenses to Baraboo convention.	3 80
	14.	Adams, Miss E. B., premiums.....	3 00
	15.	Tuthill, Mrs. E. M., reporter at Sparta con- vention.....	9 45
	16.	Campbell, Vie H., expenses to Baraboo and incidentals for society work.....	6 68
	17.	Smith, J. M., expenses on experimental station committee.....	11 40
	18.	Phillips, A. J., expenses to Janesville horti- cultural meeting.....	10 95
	19.	Smith, J. M., expenses to Janesville horticul- tural meeting.....	5 00
	20.	Hoxie, B. S., expenses and bills for nursery stock.....	50 00
	21.	Wisconsin State Agricultural society, report- ing winter meeting.....	20 00
	22.	Hoxie, B. S., expenses for nursery stock.....	10 48
	23.	Hoxie, B. S., one-quarter salary as secretary.	75 00
	24.	Hoxie, B. S., paid for nursery stock for ex- perimental stations.....	33 65
	25.	Hoxie, B. S., account of expenses.....	33 19

Voucher No. 26.	Huntley, Mrs. Daniel, expenses as delegate to summer meeting.....	10 70
27.	Order destroyed.....	
28.	Smith, J. M.....	11 10
29.	Gale, A. I., expenses as delegate to summer meeting.....	10 45
30.	Hamilton, H., expenses as delegate to summer meeting.....	12 50
31.	Sargent, Mrs. E., expenses as delegate to summer meeting.....	4 50
32.	Thayer, M. A., expenses as delegate to summer meeting.....	4 50
33.	Adams, B. F., expenses to summer meeting.....	8 00
34.	Harden, F. A., expenses as delegate to summer meeting.....	8 66
35.	Wakefield, J., expenses as delegate to summer meeting.....	9 97
36.	Holmes, W. H., expenses as delegate to summer meeting.....	9 93
37.	Kellogg, Geo. J., premiums.....	6 00
38.	Hanchett, Geo. & Son, premiums.....	4 00
39.	Gale, Isaac & Son, premiums.....	11 00
40.	Thayer, M. A., premium.....	1 00
41.	Head, J. C., premiums.....	7 00
42.	Price, Mrs. W. T., premium.....	1 50
43.	Marsh, Mrs. John, premium.....	1 00
44.	Gibhart, Mrs. Sarah, premium.....	1 00
45.	Crosby, Mrs. J. P., premium.....	1 50
46.	Jones, Mrs. Sam, premium.....	1 00
47.	Thayer, Mrs. M. A., premium.....	\$1 50
48.	Duxbury, Mrs. Mary, premiums.....	2 00
49.	Hoxie, B. S., expenses to summer meeting...	9 08
50.	Campbell, Vie H., expenses to summer meeting.....	11 38
51.	Hoxie, B. S., one-quarter salary as secretary.	75 00
52.	Hoxie, B. S., postage and stationary.....	18 30
53.	Hoxie, B. S., expenses to Chicago.....	12 34
54.	Thayer, M. A., expenses to Chicago.....	17 70
55.	Campbell, Vie H., reporting and transcribing, summer meeting.....	10 00
56.	Hoxie, B. S., one-quarter salary as secretary.	75 00
Total disbursements to February 4, 1890.....		\$1,009 60
Amount on hand February 4, 1890.....		238 73

VIE H. CAMPBELL,

Treasurer.

REPORT OF COMMITTEE ON FRUIT EXHIBIT.

To the President and Members of the State Horticultural Society:

Your committee on Award of Premiums respectfully report as follows:

For the largest and best collection of apples, not less than ten varieties, the committee find three entries, and award to

Charles Hirschinger, the first premium.....	\$8 00
A. L. Hatch, second.....	6 00
Geo. Jeffrey, third.....	4 00

Best collection of Seedling apples, not less than ten varieties,

Charles Hirschinger, first.....	\$5 00
No second.	

Best collection of Russian apples, new varieties, not less than five,

A. L. Hatch, first.....	\$5 00
Geo. Jeffrey, second.....	3 00

Best collection of pears,

Geo. Jeffrey, first.....	\$3 00
No second.	

Best show of grapes fit for table use,

Isaac Gale & Son, first.....	\$2 00
No second.	

Best plate of winter apples,

O. A. Hatch, first.....	\$1 00
Chas. Hirschinger, second.....	50

Best plate seedlings,

Chas. Hirschinger, first.....	\$1 00
F. H. Chappel, second.....	50

Best plate Russians,

A. L. Hatch, first.....	\$1 00
Chas. Hirschinger, second.....	50

Your committee find that the Waupaca County Horticultural Society have made a large and very beautiful exhibit of seedlings, and recommend that the society be awarded a premium of five dollars on account of such exhibit. Also that said society be awarded fifty cents for best plate exhibit of winter apples.

We further recommend that the same society be awarded a premium of five dollars for an exhibit of four plates of the best Wolf river apples ever shown on the tables of this society.

Adopted.

J. M. EDWARDS,
WERDEN REYNOLDS,
R. J. COE.

REPORTS FROM LOCAL SOCIETIES.

ANNUAL REPORT OF THE BROWN COUNTY H. & A. SOCIETY.

OFFICE OF THE SECRETARY,
January 3, 1891.

The Secretary respectfully submits the following report of the transactions of the Society for the year ending December 31, 1890:

I. MEETINGS.

During the year the Society has held nine regular monthly business sessions at times and places as follows:

January 4th — Annual meeting at the Business Men's rooms in the city of Green Bay.

February 1st — Regular monthly meeting at Business Men's rooms.

April 5th — Regular monthly meeting at Business Men's rooms.

May 31st — At the residence of William Finnegan, town of Howard.

June 28th — Annual Strawberry Festival, on the premises of President John M. Smith, Green Bay.

August 2d — Deferred July meeting at the residence of Thomas Wishart, town of De Pere.

August 30th — Regular monthly meeting in the grove on the premises of J. D. McAllister, town of Howard, near Mills Centre.

September 27th — At the residence of Daniel Odell, town of Howard.

November 22nd — At the residence of President Smith, Green Bay.

II. TOPICS DISCUSSED AND BUSINESS TRANSACTED.

At the January Meeting:— Annual Reports Rendered — Officers Elected.

February Meeting: — Preparatory Spring Work — What is to be done; How is it to be done; When should it be done. W. Reynolds appointed Delegate to the Annual Convention of the State Societies. Executive Committee instructed to make provisions for the Farmers' Institute.

April Meeting: — Discussion of the question, "What is necessary in the preparation of the land for good crops."— Paper entitled, "Successful Men at the Institutes."— Proposition to add to our regular business programme a Juvenile Department favorably considered.

May Meeting: — Subject discussed: The Cultivation of Corn and Potatoes.— Original Paper, "The Successful Career of a Dutiful Son."— First exercises of the Juvenile Department.

June Meeting: — At this meeting several members of the Grand Chute Horticultural Society were present. General themes considered, "Small Fruits in relation to the Perfect Home," (1) A Living Necessity, (2) A Heaven Given Luxury, (3) A Peerless Embellishment.— Original Papers by

Lady Visitors and Members; The Work of the Horticulturist.—What Farmers can do for their Children,—Home Decorations.—Juvenile Exercises.

July Meeting, Aug. 2:—Drainage,—Original Paper, "My Observations in California."—Juvenile Exercises.

August Meeting.—Harvesting and Marketing Farm Products.—Exercises of Juvenile Department including an original Essay on Moral and Intellectual Culture.

September Meeting:—Subject proposed for consideration, "Brown County Crops for 1890."—Not discussed because of the few members present.

November Meeting:—Duties, Labors and Entertainments appropriate to Farmers' Households during the Winter Season.

Throughout the year the discussions have been carried on with interest, and the meetings have uniformly been occasions of profit and enjoyment.

III. MEMBERSHIP.

Two members only have been added to our active membership during the year, making the present number about sixty-five.

Fifty-one of this number are at present in good standing upon the Society's Ledger. These, with two life members and about a dozen listed as honorary, make up the male membership as just estimated.

IV. BOOKS, SEEDS.

A large invoice of garden seeds was received from the Agricultural department in the early spring, embracing every variety wanted for garden planting. They came in packages varying in number of the same kind of seed from 10 to 150. Postal notice was immediately issued to all the members of the society inviting them to be present at the Business Men's rooms on the 26th of April and share in the distribution.

The usual quota of the Publications of the State Horticultural and Agricultural society's have been received and distributed, embracing: (1) Transactions of the State Horticultural Society for 1890. (2) Wisconsin Farmers' Institutes No. 4, a most valuable production, styled by W. H. Morrison, Superintendent, "A Hand Book of Agriculture," a title truly descriptive, and of which it is amply worthy. (3) Transactions of the State Agricultural Society, vol. 27, 1889. (4) Sixth Annual Report of the Agricultural Experiment Station 1889. Productions worth in the aggregate, ten times the annual dues of this society.

OFFICERS ELECTED FOR THE ENSUING YEAR.

President — J. M. Smith.

Vice President — W. Harold Woodnuff.

Secretary — Werden Reynolds.

Treasurer — Fred B. Warren.

WERDEN REYNOLDS,

9—H.

Secretary.

REPORT OF LAFAYETTE COUNTY HORTICULTURAL SOCIETY.

This Society was first organized on January 8th, 1891, at Darlington, with the assistance of B. S. Hoxie. The officers then elected were as follows:

President — Warren Gray, Darlington, Wis.

Secretary — Milford Jenks, Darlington, Wis.

Treasurer — John Rogers, Darlington, Wis.

Trustees — N. J. Thompson, Darlington, Wis., Geo. Russell, Darlington, Wis., and G. W. Stephenson, Lamont, Wis.

A meeting was held in Darlington, on January 17th, at which time the organization was more fully completed.

Our next meeting will be held March 18th, 1891. Our membership is small in regard to numbers but we are very much in earnest.

MILFORD JENKS,
Secretary,

ANNUAL REPORT OF THE JANESVILLE HORTICULTURAL SOCIETY.

It is impossible to make an interesting report, for the reason that so little enthusiasm has been shown by the members of our meeting the past year. Several meetings have been held during the year, the one on March 25th being the most noted. Our society is now twenty-four years old and its list of membership includes many of the best citizens we have here. We have thirty life members, ten annual, and thirteen honorary. We have a balance in our treasury and no debts. Mr. Geo. J. Kellogg represented our society at the state meeting last year, and was re-elected as a delegate to represent this society at the state meeting next year.

The officers of the society for 1891 are:

President — Geo. J. Kellogg.

Vice-President — Dr. O. P. Robinson.

Secretary — E. B. Heimstreet.

Treasurer — Dr. J. B. Whiting.

Trustees: D. E. Fifield, Dr. O. P. Robinson, I. C. Sloan, John R. Bennett, J. J. R. Pease, B. Spence.

A spring institute was held at Janesville on March 25th, at the council rooms, three sessions being held during the day and the following programme was carried out:

10 A. M. — Evergreens, Protection and Ornament — J. C. Plumb, Milton, and Robt. Lilburn, Emerald Grove.

11 A. M. — Blackberries, Raspberries and Currants. Free for all. Question box.

1 P. M. sharp — Orchards in Hard Places — A. J. Phillips, West Salem.

Farmers' Orchards — H. Tarrant, L. L. Olds, Clinton; Dr. J. Tinker, Clinton; Loren Finch, La Prairie.

2 P. M. — Seedling Strawberries — F. S. Loudon, Janesville, and P. Crosby, Clinton.

2:30 P. M. — Spraying for Insects and Apple Scab — Prof. E. S. Goff, Madison, and the Use of Commercial fertilizers.

3:15 P. M. — Strawberries from a Farmer's Standpoint — B. F. Sayre, Fulton; E. J. Scofield, Hanover; J. B. Smith, Clinton.

4 P. M. — Commercial Fertilizers — J. M. Smith, president Wis. S. H. Society, Green Bay; F. S. Loudon, E. J. Scofield, H. Daverkosen, Janesville.

7 P. M. — Grapes for the Farmer and City Garden — J. S. McGowan, F. S. Lawrence and Dr. O. P. Robinson, Janesville.

7:30 P. M. — Gardening for Profit — J. M. Smith, Green Bay, president W. S. H. S.

8 P. M. — House Plants, Winter and Summer — Walter Helms, Mrs. Hill and Mrs. J. L. Ford, Janesville.

8:30 P. M. — Shade Trees for Street, Lawn and Cemetery, Alex Graham, Janesville.

Discussions and questions followed each speaker, and a very pleasant day was passed.

E. B. HEIMSTREET,
Secretary.

REPORT OF THE GRAND CHUTE HORTICULTURAL SOCIETY.

This society has done some excellent work the past year. The members show an increasing interest in the culture of small fruits, especially strawberries. Many varieties are grown, but more of the Wilson and Crescent than any other kinds. The Jessie does splendidly with some growers, while others do not like it. The Manchester and Sharpless do well in many gardens. Raspberries are also grown for home use, and by some for market. Nearly all the members are growing grapes; vines set two years ago bore fruit last season.

Our meetings have been held quarterly the past year, and were instructive and interesting, and the attendance larger than formerly. The strawberry festival in July and the grape festival in October have become established features of the year. The July meeting was one of great interest and also the largest meeting ever held by this society.

The annual meeting was held January 1st. The election of officers resulted in the choice of Mr. B. Johnston, president; A. H. Burch, treasurer.

MRS. D. HUNTLEY,
Secretary.

REPORT OF THE SPARTA HORTICULTURAL SOCIETY, MONROE COUNTY, WISCONSIN.

SPARTA, January 31, 1891.

The past year has been a very prosperous one for this society. We now have over one hundred active members.

The average of small fruit has been increased nearly fifty per cent. the past year, and from the fact that the crop of 1890 was large, and good prices were realized, no doubt the increase the coming year will be nearly as large.

The leading fruits grown are the blackberry, raspberry and strawberry.

The annual winter meeting was held January 30, 1891, at Good Templars hall, in this city.

It was an all day meeting, with a banquet at 1 o'clock.

The attendance was large, much interest was manifested, and a large number from La Crosse and other counties were present.

The following officers were elected for the ensuing year:

M. A. Thayer — President.

George Hanchett — Vice President.

L. S. Fisher — Secretary.

C. E. Hanchett — Treasurer.

Executive committee: Z. K. Jewett, Will Hanchett, Mrs. James Davidson, Mrs. T. B. Tyler, Mrs. J. T. Sargent, Mrs. T. G. Gould, Mrs. A. Jewett.

Delegates to the state society: M. A. Thayer, A. F. Brandt, Will McBride, A. Jewett, E. W. Babcock.

Respectfully submitted,

L. S. FISHER,
Secretary.

ANNUAL REPORT OF RIPON HORTICULTURAL SOCIETY.

This society held its annual meetings January 21, 1891, and elected the following officers for the year:

President — L. G. Kellogg.

Vice President — Mrs. L. K. Hood.

Secretary — A. S. Crooker.

Treasurer — E. Woodruff.

Meetings of this society are held on the third Wednesday of each month in winter, but during the busy season they are not held regularly. Nearly all the members are engaged in growing the small fruits. Our society now numbers thirty-four active members.

A. S. CROOKER,
Secretary.

Ripon, Wis., February 17, 1891.

The following is the list of officers of the Freedom Horticultural Society elected at annual meeting February 19, 1891:

President — Leonard Roser.

Secretary — Charles Hirschinger.

Treasurer — George Armbraster.

Executive Committee: H. Voll, Chas. Clark and F. Bowen.

CHARLES HIRSCHINGER,

Secretary.

REPORT OF OMRO HORTICULTURAL SOCIETY AND IMPROVEMENT ASSOCIATION, WINNEBAGO COUNTY, WIS.

The officers for this society for the year 1891 are as follows:

John L. Fisk — President.

G. O. Morton — Vice-President.

P. H. Merrill — Secretary.

Mrs. Jos. D. Treleven — Treasurer.

Executive committee — O. W. Babcock, L. C. Booth and J. J. Baldry.

P. H. MERRILL,

Secretary.

ANNUAL REPORT WAUKESHA COUNTY HORTICULTURAL SOCIETY.

The fourth annual meeting of the Waukesha County Horticultural society was held January 5, 1891. At which term the following officers were elected:

President — Alex Cook.

Vice-President — A. W. B. Dey.

Secretary — Isaac Gale.

Treasurer — A. J. Gale.

Executive Committee — G. T. Teffer, O. P. Clinton, S. Eales.

Our society held a summer meeting July 10. The exhibit of small fruit was good with the exception of strawberries being out of season for them. Also a fine show of flowers and vegetables. Prof. Goff and Hon. B. F. Adams of Madison, also Ma Tramp of Genesee, gave us very interesting and instructive papers, which with the remarks of our president, made the evening session one of very much interest to those present.

ISAAC GALE,

Secretary.

FREMONT HORTICULTURAL SOCIETY.

We have about twenty members; the officers for the coming year are:

President — C. F. Eaton.

Vice President — Paul Scheisser.

Secretary — J. Wakefield.

Treasurer — J. Steiger.

Executive Committee — H. Spindler, W. A. Springel, G. W. Holmes.

Delegates State Society — J. Wakefield, Mrs. J. Wakefield.

The different varieties of strawberries for general cultivation being, Crescent, Wilson, Captain Jack, Sharpless.

No one seemed disposed to say a word in favor of the Jessie or Bubuch.

The Jessie has not proved a success with our members. In short, we feel like going slow on all new varieties.

J. WAKEFIELD,
Secretary.

WAUPACA COUNTY HORTICULTURAL SOCIETY.

The annual meeting of our society was held January 16, 1891; the following officers were elected:

President — G. W. Taggart.

Vice President — Albert Smith.

Secretary — J. Wakefield.

Treasurer — Jas. Jenney.

Executive Committee — A. S. Bennett, Fred Harden, P. Watterson.

Delegates State Society — J. Wakefield, Hollis Gibson.

We still have about fifty members, a large share of whom take much interest in our proceedings, our meetings are interesting and quite well attended. At our last meeting the Ben Davis apple was voted down. It was considered too tender for this climate.

A few of our Waupaca County Seedlings were on exhibition, and were pronounced very nice and tempting.

J. WAKEFIELD,
Secretary.

REPORT OF SAUK COUNTY HORTICULTURAL SOCIETY FOR
THE YEAR ENDING DECEMBER 11th, 1890.

At this last annual meeting the following officers were elected for the year ending December 11th, 1891:

President — Wm. Toole, of Baraboo.

Vice President — D. E. Palmer, of Fairfield.

Secretary — A. Clark Tuttle, of Baraboo.

Treasurer — Geo. Townsend, of Baraboo.

Executive Committee — Wm. Fox, chairman, of Baraboo; Mrs. F. Johnson, of Baraboo; Mrs. Geo. Mariott, of Baraboo; Chas. Hirschinger, of Baraboo; M. T. Newell, of Delton.

The Sauk County Agricultural and Horticultural societies held a joint convention commencing February 11th, 1890. The horticultural portion commenced at 7:30 P. M. with a short address by Pres. Toole, in which he spoke of the increased interest, and offered suggestions for future work.

Mrs. Maggie Kelley then read a paper on Pansies, followed by an essay by Miss Nora Adams, of Evansville, entitled, "Trees and Shrubs of Wisconsin." Prof. E. S. Goff then gave his highly interesting talk on "Apple Scab," aided by diagrams, etc. This was followed by a poem by Miss Cora Davis, of Baraboo. The "High School March" rendered by quartette from high school choir, closed the evenings entertainment.

FEBRUARY 12th, P. M.

M. C. Waite, of Baraboo, opened the session with "Paper on Begonias." D. F. Sayre, of Fulton, Wis., read a paper entitled, "The Residences of the Farm." Next was a paper from Mrs. F. Johnson, of Baraboo, "Trials and Triumphs of Small Fruit Amateur." Mrs. Campbell, of Evansville, read her rural novelette entitled, "The House That Jack Built." Pres. Toole concluded the session with some remarks on "Bulbs for Winter Blooming."

FEBRUARY 13th, A. M.

State Secretary Hoxie opened this session with a paper entitled, "Progressive Horticulture." M. T. Newell, of Dalton, followed with his "Experiences in Small Fruit Culture." Wm. Fox then read a paper on "Grape Diseases." Chas. Hirschinger, ended the session with his talk "On Picking, Packing, Keeping and Marketing Apples." A resolution was passed asking Mr. Orange Newell, the originator of the Orange Winter, to change the name of that apple to Newell's Winter. Mr. Newell endorsed the change.

Membership enrolled this last year is twenty-two. Annual fee, twenty-five cents.

This past season has been a successful one for the fruit growers of this county. The apple crop was not generally good, but some orchards bore well. D. E. Palmer realized in the neighborhood of \$3,000 from his apples, and many others sold smaller amounts at good prices. M. T. Newell is one of the leaders in small fruits. He had a fine season's crop of black raspberries, most of which he shipped, getting good prices. There was much more shipping done this year than before, and of course the home market was improved. I think more attention was paid to grading the fruit and consequently the reputation of the fruits of this county in outside markets, has been much improved.

A. CLARK TUTTLE,
Secretary.

REPORT OF THE AMHERST HORTICULTURAL AND AGRICULTURAL CLUB FOR 1890.

Number of members thirty. Number of meetings held during the year four. The following officers were elected at the July meeting:

President — G. M. Thompson.

Vice President — A. J. Smith.

Secretary — J. H. Felch.

Treasurer — S. N. Buswell.

Corresponding Secretary — E. Grover.

The finances of the club are in good condition.

Respectfully submitted,

J. H. FELCH,

Secretary.

Amherst Junction.

ANNUAL REPORT OF THE WAUPACA HORTICULTURAL SOCIETY AND IMPROVEMENT ASSOCIATION.

The officers elected for the year are:

President — W. N. Holms.

Secretary — F. Rich.

Treasurer — Mrs. A. D. Barnes.

This society is in great working condition and are now negotiating for a plat of ground for a park and are hopeful to entertain the State Horticultural Society in June next.

F. RICH,

Secretary.

Waupaca, March 2, 1891.

REPORT OF KILBOURN HORTICULTURAL AND IMPROVEMENT SOCIETY.

This society organized by adopting constitution and electing the following officers for the ensuing year:

President — A. W. Ramsey.

Vice President — Geo. Oakes.

Secretary — Geo. Campbell.

Treasurer — Theron Barse.

Executive Committee: J. A. Gifford, M. Smith and J. D. Stowell.

It was voted to hold regular monthly meetings on the third Saturday of each month.

GEO. CAMPBELL,

Secretary.

Kilbourn, March 27, 1891.

REPORT OF HORTICULTURAL AND IMPROVEMENT ASSOCIATION
OF SOUTH WAYNE, LA FAYETTE COUNTY, WIS.

This society was organized March 4, 1891, and at the first monthly meeting thereafter numbered sixty members.

The officers elected for the ensuing year are:

President — S. W. Usher.

Vice President — N. La Duc.

Secretary — J. J. Iverson.

Treasurer — Mrs. L. W. Heindal.

J. J. IVERSON,
Secretary.

EVANSVILLE HORTICULTURAL SOCIETY AND IMPROVEMENT
ASSOCIATION.

A meeting called for the purpose of organizing a Horticultural society held at the store of Horner Potter in Evansville, Friday evening June 12, 1891. Mr. Horner Potter was elected as temporary chairman and B. S. Hoxie as secretary. A printed form of constitution was presented by the secretary, which was adopted by vote with slight amendments.

Prof. J. Emery Coleman, was elected president, Mrs. A. M. Barnes, vice-president and Rev. Walter McFarland, secretary,

Prof. J. E. Coleman was elected delegate to the state society and Rev. John Schofield as alternate.

W. MCFARLAND,
Secretary.

Evansville, Wis., June 12, 1891.



Patrick Barry.

By E. S. Goff, University, Madison, Wis.

Among our horticulturists, we may recognize a race of pioneers. Men who rose to eminence in their chosen calling before the days of horticultural schools, and who have largely created the standard horticultural literature of our day.

But like the primeval trees of our landscape, these revered workers are rapidly passing away. The Downings, Warder, Wilder, Hovey, Meehan, Henderson and others have been called from the field, and in this volume, we must add the name of one who stood conspicuous among this noble school of pioneer horticulturists,—the Hon. Patrick Barry, late of Rochester, N. Y.

Mr. Barry was born near Belfast, Ireland, in 1816, and came to this country when about twenty years of age. Though well educated at that time, he served several years as a laborer in a Long Island nursery. In the year 1840, just half a century previous to his death, in company with Mr. Geo. Ellwanger, he established the now famous nursery of Ellwanger & Barry, of Rochester, N. Y. The rapid development of our country brought abundant rewards to the enterprise and strict integrity that have always characterized this noble firm, and their nursery rapidly increased from its original seven acres to one of the largest in the world, and it has come to be known wher-

ever commerce extends. The thrift and munificence of this firm have given to the city of Rochester some of its most important improvements.

Mr. Barry was long recognized as one of the substantial business men of his city, and held many positions of honor and trust. He was frequently elected to the city council, was president of an extensive system of street railways, of the Rochester Gas Light company, of the Mechanics Savings bank, the Flour City, National bank, and the Flour City Hotel company, and often served as chairman of important citizens committees. He possessed rare ability as a presiding officer, which brought him into almost universal demand for this sort of service.

But amid the multifarious cares of his extensive business interests, Mr. Barry was always an earnest student of horticulture, and was recognized as one of the leading horticulturists of the world. He was for many years a most helpful member of the American Pomological Society, and for three years, beginning in 1852, he was editor of *The Horticulturist*, founded by A. J. Downing. He kept well up with the horticultural literature of two continents, and in his *Fruit Garden*, which has run through many editions, he has left us a work on pomology of the very highest merit. For more than twenty-six years he served as president of the Western New York Horticultural Society, and it was largely through his generous assistance that this society has reached the high standing it enjoys. Mr. Barry had much faith in scientific investigation and experiment, and was ever ready to consider new ideas. He sought to aid progress in horticulture by every means within his reach.

In manner, Mr. Barry was dignified and stern, but he was generous and sympathetic at heart. He had words of encouragement for every young horticulturist, and was kind and gentle wherever these qualities were appropriate. He could be witty at times, but always manifested a cool and conservative judgment. His death occurred June 20, 1890, at his home in Rochester, N. Y.

No horticulturist of this or any age can be upheld as a more noble example for young men to imitate.

REPORTS OF AD INTERIM COMMITTEES:

REPORT OF D. C. CONVERSE, FT. ATKINSON.

The winter of 1889-1890 was quite mild, being warm and muggy, with an occasional cold snap lasting only a few days. Spring opened early with plenty of moisture, making the early part of the season the best for setting fruit that we have had for years. Apple trees blossomed full but for some reason very few varieties set and matured their fruit.

In the summer we had a very disastrous sand storm from the southwest, which dried the leaves on a great many fruit and ornamental trees, stopping growth and in the case of some vegetables completely ruining them.

The strawberry crop was heavy, but was hastened very much by the hot, moist and muggy weather at time of ripening. As a consequence berries were crowded into the market in a soft condition, which necessitated quick sales and low prices.

Raspberry bushes that went into winter in good condition bore a good crop and brought fair prices.

During the blackberry season our section suffered severely from drouth which shortened the crop to a great extent, but prices were correspondingly high.

METHODS OF CULTURE.

In regard to bending down and covering blackberry canes in winter the past season's crop showed conclusively that canes so treated withstand the hot sun and dry parching winds of summer much better than those standing erect.

On blackberry bushes that were not mulched heavily in spring the crop was nearly a total failure, while the new growth was next to nothing. The rows mulched matured nearly the full crop, showing that our main hope to secure a good crop of berries despite the drouth is by the use of a heavy mulch in spring.

VARIETIES FRUITED.

We have few commercial orchards, but nearly every farm has its supply of trees planted for home use. One orchard was nearly a total failure, except some ten Duchess trees which were protected on the west and south by timber. These ten trees brought the owner \$100.

The leading varieties of strawberries were Wilson, Crescent, Park Beauty, Sucker State, Capt. Jack, Bubach, Jessie, Warfield and Haverland.

Raspberries: Turner, Cuthbert, Brandywine, Shaffer's, Souhegan, Ohio, Gregg and Nemaha.

Blackberries: Snyder and Stone's Hardy.

Currants: Red Dutch, Victoria, Fay's, White Grape.

Gooseberries: Downing, Houghton and Industry.

Grapes: Moore's Early, Brighton, Worden, Concord, Salem, Lady, Niagara, Wilder, Agawam.

Very few pears, plums and cherries are in fruiting, but a great many have been planted for family use.

REPORT OF WERDEN REYNOLDS.

GREEN BAY, December 20, 1890.

Secretary Wis. Horticultural Society:

DEAR SIR: My observations of horticultural phenomena in this district have not been as extended as I purposed to make them. Claiming the indulgence of the society I briefly report as follows:

Unfavorable Influences.—Small fruits were somewhat damaged by the violent rain and wind storms and the excessive heat of the last two weeks of June. During the same period the fire blight fell upon the apple orchards of this vicinity quite generally, particularly upon the younger trees, and blasted much of the growing fruit. Probably the loss of small fruits from these sources amounted to from one-eighth to one-fourth of the entire crops. I cannot say that the quality of the ripened fruit was unfavorably affected.

Crops of 1889 and 1890, compared.—In many places the small fruit crops of 1889 were not a little damaged by the late frosts, so that probably the average, both of quantity and of quality, for the two seasons would differ but very little.

Quantity and Market Price.—Strawberries did certainly not advance upon the average price of preceding years, doubtless fell below it. Raspberries brought fair and currants very satisfactory prices. All these fruits, with abatements previously noted, have been produced in quantities generally answering the hopes and expectations of the growers. The apple crop of Brown county fell short of the average both in quantity and in quality, and yet brought a high price, owing, unquestionably, to the insufficient products of other apple-growing sections of the country.

Not one-fifth of the farmers of this vicinity raise all the family needs of the various fruits usually grown in our state.

Apples are grown in this vicinity both for home use and for the market, although the supply of winter fruit, particularly, falls much short of that needed at home.

The farmers of Brown county, as a rule, have not creditable fruit and vegetable gardens. There is, however, of late years, a very marked improvement in this direction throughout the county, particularly in and around the cities of Green Bay and Fort Howard; the business of market gardening is rapidly increasing and has already become quite extensive; indeed, I think I may safely say, on the strength of President Smith's observations as reported by himself, that there is more good market garden-

ing done within three miles of Brown county court house than in any other equal area in the state. We expect more rapid advance in this business throughout the county in the immediate future than has yet been made in the past.

It would be nothing less than presumption in me at this period of our Horticultural progress, to press upon your attention any suggestions I could offer looking to the promotion of the interests of this great art and industry in the far advanced State of Wisconsin. My function is the clerical. I have merely thought it might be well if the departments of horticultural and agricultural enterprise might, by some means, be made to assume a more distinctively educative character so that farmer's boys and girls might come under a sort of systematic culture fitting them for the profession of their fathers, as children are fitted for other fields of life work.

Our University does this in one grade -- the highest -- it is true; but unlike the case of the literary college, the inferior grades of a systematic course of agricultural education have not yet been established and consequently an exceedingly small number of farmer's children ever have opportunity to obtain any better fitting for their future life work than what merely happens to them on the farm during a few years of their early life work

Respectfully,

WERDEN REYNOLDS.

ANNUAL REPORT OF WARREN GRAY, DARLINGTON, WIS.

Following a mild, open winter, spring came late bringing barely sufficient rain to germinate seed and start vegetation into growth, but the subsoil being very dry, all early fruits and vegetables suffered for want of moisture.

Strawberries -- Season short and crop light. About June 20, heavy rain followed by great heat, which scalded many of the red raspberries badly. No more rain of any consequence until August 3rd, after which we had copious showers frequently, until ground froze up late in November.

Blackberry crop about half an average.

Apples most an entire failure. Bloomed well in the spring and fine prospect for a good crop, but insects and disease got in their work well, and we had but few apples and they of very inferior quality. Some Duchess trees in June showing prospect for at least ten bushels, hardly ripened a perfect apple. Plums also failed entirely.

Grapes and late garden vegetables a fair crop.

Prospect for small fruit the coming year is better than for three years past, as the later rains gave us a good growth of canes and plants.

Thus far the winter has been mild. At the date of this writing December 30th, it is so pleasant that bees are flying.

Small fruits increasing in acreage rapidly in this vicinity. Prices still paying fairly well.

WARREN GRAY.

LAKE MICHIGAN BELT — FIRST DISTRICT.

The last winter was a favorable one in regard to weather. All fruit trees, vines, bushes and plants came through safely, without injury to either root or buds, and the prospect for all kinds of fruit more favorable than previous years, as this would have been the bearing season for the apple and pear. All blossomed very full and promised well. But May 23d, 24th and 25th very strong south or gulf winds with frequent showers created just the right humidity for the fungus diseases to effect the young foliage and blossoms and on many varieties were most disastrous, especially where the showers were the most frequent, and on soils very retentive and holding moisture. This was at least the case in our district all along Lake Michigan and east and south of it. On looking over my diary we find noted June 1st, fungi and Scab on Seek-no-Further, Transcendent crab, Wealthy and Early Washington, on leaf and fruit.

June 2d, on Clark's Orange, Famuse, Yellow Bellflower, Utter, Red Astrachan, Early Harvest and others.

June 3rd we commenced spraying with copper solutions, as was recommended at our meetings, but it was too late for most varieties; it did some good on those that had thick glassy leaves and were not so easily effected, as we followed it up for several weeks.

Oldenburg, Tetofsky and Cheswick Codlin, held their fruit well, but the gouger and Coddling moth spoiled and deformed nearly one-third of them. (I don't think the Gouger or apple curculio can be destroyed by poisoned spray of any kind, but may be trapped by smearing some of the fruit branches in the tree tops with some sticky substances, as they travel from limb to limb (same as the plum curculio), and get stuck fast with their feet; they can also be caught by jarring, but being smaller, and the limbs stronger on the apple trees, they will not loose their hold as readily, and many will not fall and escape). Varieties of apples that did not drop from the effects of fungi before they got ripe, were more or less scabby, except where the trees stood on high or elevated and well drained soil, and on locations which were protected on the south or southwest side of the orchards, such as a high hill, tall timber, or a body of water, that changed the hot air or wind current. Those that were a good yield and more or less marketable and fair, are: Oldenburg, Codlin, Tetofsky, Plumb Cider, Pewaukee, Allen and Golden Russets, Tolman Sweets, Haas, Longfield, Autonofsky and some crosses of new seedling varieties.

But the gouger deformed a good many, especially the early varieties, nearly one-third showed his mark more or less; fall and winter varieties were not so much affected. Oldenburg and Tetofsky were the most; also White or Yellow Transparent, what was not spoiled by fungi. Wealthy Fameuse, fall, and Clark's Orange, Alexander, Wolf River, McMahon's White, and many others, had set full of blossoms and fruit, but lost nearly

all, and what was left on the trees spotted and cracked badly. White Doyenne and Flemish Beauty Pear did so too, but some varieties did well.

Plums — Most varieties dropped after blossoming, except those that were through before the hot winds, and had set already. Early August (of our natives) and small yellow gage and the Prunes, were the only varieties not much affected and held their fruit, but the curculio, in spite of jarring and spraying, spoiled a good share of them with us; but near Lake Michigan, some very fine crops of European varieties, also pears were raised, although but few were exhibited at our state and county fairs owing, no doubt, to the small and few premiums offered for such fruit, and these are no incentives to amateurs, because there is always a ready home market at good prices (and they need no advertising).

Cherries were a fair crop; more than common years.

Small Fruits — Strawberries were a good crop. All varieties seemed to have done their best, where good cultivation was kept up. Raspberries, blackberries, currants and gooseberries the same, except where neglected and the insects and worms were left to eat the leaves off the bushes. It was strange where there was so much mildew or fungi on fruit trees, the small fruit plants were so clear of it, even the grape vines under or near large fruit trees, were free from it, and a fine crop of grapes raised nearly all through our district. It must be a different kind of fungi that affects the grape and also the leaves. The black rot on the grape must be another specie also. We have not seen it in our district, nor heard of anybody growing grapes being troubled with it the past season.

Our district has perhaps the largest collection of all kinds of fruit that can be grown in the state, because there are all kinds of soils, high and low elevations and shelter belts. Even peaches are grown again in places (we saw more peaches on trees in our state last season, than in the southern part of the state of Michigan on a trip across that state). If we should be blest with another mild winter, and not have the thermometer mark more than 16° below zero any length of time, peaches will be raised again by those that have trees growing.

Such seasons as we are now having are the tree agents' paradise in our section, as any new fruits, Japan plums, apricots, sweet cherries, quinces, pears and many new novelties will grow, no matter if from Florida, California, Louisiana, or China and Japan, for one or two seasons.

We saw in our local county papers no less than seven advertisements for agents to sell nursery stock and novelties, new varieties of hardy fruits, etc., big wages, no previous experience needed, limited and exclusive territory, given, etc., etc., from eastern and southern nursery firms and tree dealers. Some of these agents are very communicative, and are waiting to see the new varieties recommended by this society at our present meetings, as they will have them to sell next week.

Mr. President don't you think we better recommend letting such agents alone.

G. P. P.

REPORT OF A. D. BARNES.

But little frost in the ground at the beginning of winter. Deep fall of snow, which with a dense carpet of ice, lasted well into the spring season. A good many strawberry plants were ruined with ice in low or very level sites. Cold dry spring. Fruit blossoms opening very late, but exceedingly strong and vigorous, every blossom setting a fruit. Very dry through April and the first of May. Plenty of rain the latter part of May, and decidedly too much through June. On June 20th the most rain fell at one time for years.

All kinds of small fruit and fruit trees are making a tremendous growth. Blackberry plants requiring the first pinching about the 10th of June. Much attention now bestowed on the small fruit industry. Blackberries rather taking the preference amongst planters, as our soil is especially well adapted to their growth and requirements.

Much trouble has been done this season by the cut worms on new plantations of small fruit, and but little damage or trouble from currant worms. Strawberries began to ripen from the 15th to 20th of June, and continued fruiting till the 15th of July.

All kinds of small fruit being in abundance this season, and brought a good price in both local and distant markets. Strawberries being worth, June 20th, in our own market, 12½c. Red raspberries sold readily at 8c.; currants and blackberries bringing an average of 10c. or up, at home.

Apples are a splendid crop here, where there are any trees, and are worth from \$1 to 1.50 per bushel in local markets.

The fire blight is very discouraging and disastrous to many of the varieties, while it passes other varieties without even leaving a trace. We are earnestly seeking a remedy, and have tried powdered sulphur, which when applied early and thoroughly seems effectual. We will test some more thoroughly next season. Our horticultural station, located some seven miles from here, is considering all things in a fair way to give us some practical results, and we hope much benefit from that source.

Our apple orchards are almost sure to winter successfully this winter, as the trees made a splendid growth of wood through the early and middle parts of the season, and the hard frost and dry weather now (Sept. 29) are ripening up the wood in good season.

Much interest is now (Sept. 29th) being taken with preparing small plantations of fruit for family use, and all planters are patronizing home nurseries, of which there are several small ones in our county, and scarcely a planter in this county is ordering stock from outside our own county or state. This commendable state of affairs has been brought about by the efforts of local and our State Horticultural societies. We have three local societies in this county, all of which are doing good work. We hold berry picnics in various parts of the county, which are generally well attended, and much good work and enjoyment are entertained; besides,

many new and pleasant acquaintances are made. Programmes are generally made up and carried out, and elegant dinners always spread, to which everyone is invited. Many apples are grown, such as Tatofski, Duchess, Wealthy, Haas, Wolf River, and many fine seedling. *Almost all* on clay and stony soil with northern exposures. Farms, as a rule, have fair gardens here, but there is much need of improvements in that line yet.

REPORT OF GEO. J. KELLOGG, ROCK COUNTY, WIS.

Mr. President, Ladies and Gentlemen: In order to draw some conclusions relative to the loss of our fruit crop of 1890, let us review the atmospheric conditions of the fall and winter preceding as well as the season of 1890. The month of November, 1889, gave us two inches of rainfall; four times the thermometer went fourteen below freezing.

December was wet and hot, with six inches of rainfall. Thermometer only twice at twelve below freezing.

January, 1890, four inches of rain, four inches of snow; five times below zero: the coldest the 22nd, twelve below.

February: The robins and geese made their appearance the 17th; four below zero the 21st; one inch of rain the 25th; fourteen inches of snow the 27th and 28th.

March: The first ten days from zero to twenty below every morning and again zero the 15th.

April opened with but little frost in the ground, but the continuous rains delayed spring work. Seventeen mornings frost and ice; five and one-half inches of rain fall.

May: Ice the 1st, 6th, 11th, 16th, and frost the 20th. Strawberries well in bloom the 24th, at which time we had a heavy rain followed by high winds, blighting and dropping the tree fruits and injuring the strawberries very much, the thermometer running up to 87 in the shade the 30th; this month gave us five and three-quarters inches of rain.

June, wet and hot, seven inches of rain fell before the 25th; the coldest mean temperature was 63.33 at sunrise: the mean of greatest heat was 80.73 at one P. M., being the hottest June since 1872. The last week of June registered 93 to 105 in the shade and from 125 to 135 in the sun, literally cooking the fruit on the vines.

July, was hot and dry, for twenty-four days, 80 and upwards in the shade, and seven days, 90 and upward, with no rain and baking the ground where not cultivated, and a terrible blistering wind the 30th, with the thermometer at 94 in the shade.

August 2nd, the hottest day of the year, 97 to 108 in the shade, the only day in August above 83, the month was cool, with four and one-half inches of rain.

September, cool, four inches of rain on the 20th, cutting corn badly, but most of the grape crop was gathered before this date.

The results of the open winter of 1889-1890, gave an enfeebled condition to the blossoms of fruit trees, and the excessive rains, frosts and cool nights of May — the great heat of June, with blistering, blighting winds, caused almost the entire failure of the tree fruits, except on high ground; and farther north.

The strawberry crop was abundant, except on frosty locations; but the heat of June, hurried the crop to maturity and the heavy rains made it too soft to ship, and the great heat caused heavy losses by sun scald, so that in many locations there was no profit in the crop; those growers who enjoyed a local market, realized full average returns although a short season.

Raspberries and blackberries suffered from heat and drouth. Where they were not thoroughly mulched and cultivated they proved almost an entire failure. The grape crop was slow to mature but everything ripened up in good shape and sold at good prices. Concord, at wholesale, at 5 c. per lb., Worden, Delaware and Brighton at 7 to 10 c. per lb.

We find it better economy to sell when ripe unless cold storage could be had at reasonable rates. At Minnesota we found Concords from cold storage in January in perfect condition kept in 7-pound baskets with tight covers.

The condition of the fall was such as to mature a fine growth of wood and fruit buds, and if the weather remains favorable we may look for a fine crop of apples and bugs next season.

Strawberries and grapes went into winter quarters in fine condition and where protected promise a big crop.

Raspberries and blackberries suffered more than usual with a leaf blight in the fall and the latest growth seems injured somewhat by the early frosts. Notwithstanding all the drawbacks we anticipate a prosperous season for 1891 and with energy, care and culture we do not need to go to Florida, California, Dakota or New Jersey to make a success of fruit raising or to escape the wandering blizzards.

REPORT OF COMMITTEE ON FINANCE.

To the President and Members of the Wisconsin State Horticultural Society:

Your Committee on Finance respectfully report that we have carefully examined the financial reports of the secretary and treasurer, together with the vouchers accompanying them, and find the same to agree in all respects, and to be correct.

[Signed.]

J. M. EDWARDS,
N. N. PALMER,
WERDEN REYNOLDS.

COLUMBIAN EXPOSITION.

WHEREAS, We learn that the Columbian Exposition Commissioners have adopted a schedule for the Horticultural Department, which in our judgment reverses the natural order, and removes Pomology from its proper place at the head making it subordinate in position. Therefore,

Resolved, That the Wisconsin State Horticultural Society, in annual meeting assembled this 4th day of February, 1891, do hereby urge said commissioners to revise said schedule after the following order, to-wit.:

DEPARTMENT B — HORTICULTURE.

Group 21 — Pomology,

Group 22 — Floriculture.

Group 23 — Truck and kitchen gardening.

Group 24 — Arborculture.

Group 25 — Horticultural appliances.

Group 26 — Miscellaneous.

WHEREAS, This Society, in a former World's Fair Exposition, was so favorably impressed with the administrative ability of Parker Earle, therefore we would respectfully urge that Mr. Earle be placed in the same position as Chief of the Horticultural Department.

RESOLUTION OF RESPECT.

Adopted by a rising vote of the society.

Resolved, That at the retiring of J. M. Smith from the presidency of the Wisconsin State Horticultural society, which office he has so well and efficiently held for the past thirteen years, we would hereby express our grateful thanks for the many sacrifices made by him in the interest of Wisconsin horticulture, and for the uniform courtesy and good will manifest in all of his relations with the society, which has so distinguished his administration during these years, and we trust his love and devotion to our society and its work will be continuous while he remains a citizen of our commonwealth.

RESOLUTIONS.

Resolved, That the thanks of this society are due and hereby tendered to W. H. Ragan, secretary of the Indiana State Horticultural society for a package of Transactions of the American Horticultural society, Vol. II.

Resolved, That the Wisconsin State Horticultural society in kindly remembrance of the labors of our fellow co-worker, Geo. P. Peffer in his efforts to promote the interests of this society do extend to him our sympathy in his infirmities which prevent him from attending this annual session of our society.

Resolved, That in future annual meetings of this society, the joint sessions with any other society shall be after Wednesday of the week of meeting.

Resolved, That the making and arranging of programme be left entirely with the secretary.

Resolved, That this society does hereby extend a vote of thanks to Messrs. Tuttle and Hirschinger, of Baraboo; Plumb & Son, of Milton; Wm. Springer, of Fremont; A. D. Barnes, of Waupaca; Geo. P. Pepper, of Pewaukee; Isaac Gale and Son, of Waukesha; J. M. Edwards and Son, Ft. Atkinson; and Coe and Converse, of Ft. Atkinson, for donations of trees and plants for the several trial stations in this state under the directions of the Horticultural society.

Resolved, That the thanks of this society are due and are hereby tendered to Prof. Henry for his co-operation through Prof. Goff in the experimental work undertaken by the society.

Resolved, Also that we cordially invite the attention of the boys and girls of Wisconsin to the practical education in horticulture to be obtained in the Agricultural Department of the State University.

Resolved, That our thanks are cordially given to Prof. E. S. Goff, for his efficient help in furthering the objects of our organization, also that copies of these resolutions be forwarded to Professors Henry and Goff.

Resolved, That the thanks of this Society are hereby tendered to the Superintendent of Public Property and his assistants for their kindness and courtesy in providing suitable accommodations in the rooms of the capitol building for our meetings and fruit exhibit.

M. A. THAYER,
President.

B. S. HOXIE,
Secretary.

FRIDAY A. M., FEBRUARY 6TH,
HORTICULTURAL ROOMS.

M. A. Thayer presiding.

Mr. Coe, of Ft. Atkinson, offered the following resolution:

Resolved, If we succeed in securing an increased appropriation, that the salary of the secretary be raised \$100.00.

Adopted.

C. A. Hatch presented resolution giving a vote of thanks to Profs. Henry and Goff. Adopted.

Secretary moved that a vote of thanks be tendered the Superintendent of Public Property. Carried.

No further business being offered, the president declared the convention adjourned *sine die*.

B. S. HOXIE,
Secretary.

SKETCH OF J. M. SMITH.

To the members of the Wisconsin State Horticultural society, and hundreds of others who may open this volume of our transactions, I need not say that the frontis, piece which greets you, so life like is the counterpart of him who for fourteen years was its honored president.

John M. Smith was born at Morristown, New Jersey, December 13, 1820, and was married to Miss Emily B. Torry, March 14, 1844. Mr. Smith was brought up on a farm, but at the time of his majority, and after marriage until the year 1854, was engaged in the lumbering business in his native state. Wisconsin, at that time, held out bright allurements, and during the year of 1854, he moved to Green Bay, and in the year 1856, built a house which at the present time forms a part of the home he now occupies.

The early training on the farm and the love for tilling the soil of mother earth, induced him to take up the occupation of gardening, and on his village lots he raised and sold his first fruit and vegetables in the year of 1857.

Mr. Smith was in the army for about one year; he came home with impaired health and commenced the business of market gardener as a profession; at first on a small scale with only an acre or two, but gradually increasing the area until at the present time his garden comprises over forty acres with annual sales of more than \$15,000. The name of J. M. Smith is not only a household word all over the west, but "From J. M. Smith, Green Bay, Wis.," marked on crate or box, is sufficient guarantee of the contents without opening for inspection.

To Mr. and Mrs. Smith have been born eleven children, nine sons and two daughters; seven sons and one daughter are now living, and the sons are all engaged, either wholly or partially, in cultivating the soil as a profession. The daughter is the wife of a congregational minister. During the time Mr. Smith occupied the position of president of the Wisconsin State Horticultural society he was sent as delegate to several state societies, the American Pomological society, and attended the session of the American Horticultural society as delegate to California in the winter of 1888.

Mr. Smith's addresses before state societies or farmers institutes are always practical, and his statements never overdrawn because practical results are the foundation for his assertions. Gentlemanly and courteous in his manner, he has always won friends wherever he has been called to work in this capacity. He cheerfully accords to others what he reserves to himself—the right of private opinion—but utterly detests and denounces shams and frauds. His ambition to excel in his profession is the laudable one of putting on the market only the best that his garden can produce. As illustrative, in the year 1888, the *American Agriculturist* offered a

prize of \$500 for the largest yield of potatoes from one acre with no distinction as to variety. This offer induced Mr. Smith to carry out an experiment which he had for some time contemplated with four acres, using a variety of fertilizer on each distinct acre. When he told the writer that he intended to compete for the prize, I said, you do not expect to beat those Arosstic county fellows in Maine do you? "*Well, whether I do or not this shall be the best variety for my customers.*" The result was over 450 bushels of Early Ohio per acre, which sold at an advance over market price because of extra quality.

His keen sense of justice and equality has ever prompted him to accord to woman an equality with man; to his efforts are we indebted for the earnest practical papers written by women that add so much to the value of our transactions. By his fine appreciative powers and kindly encouragement many have been stimulated to cultivate their talent and have become prominent in literary attainment.

Mr. Smith has always given prominence to the fact that his wife is an equal worker with him in building up the home. So conscious is he of this that whenever he writes of her, wife is always spelled with a capital W. They are large hearted in their charities, as their employes and the needy and destitute people in Green Bay will bear testimony.

During a visit at his house a few years ago, I noticed numerous pairs of hand knit small stockings and mittens and on inquiry found that he and Mrs. Smith had made it a practice for years, of having a Christmas tree in their home on which presents were placed for the numerous families—employes and their children—who on this festal occasion were always remembered with gifts and a Christmas supper.

Brown County Horticultural and Agricultural society was organized January 30, 1874, and Mr. Smith was elected its first president, and at each subsequent annual meeting has been re elected. Increasing years and failing health seemed to make it imperative that Mr. Smith should retire as acting president of the State Horticultural society, which position he had honored for so many years, and his successor, M. A. Thayer, of Sparta, was elected February 5th, 1891.

Although Mr. Smith retires from the active duties of the society as its President, yet the memory of the friendships and associations connected with it will always be as bright with him as his work and kind deeds will be to all of its members.

B. S. H.

PAPERS PERTAINING TO TRIAL STATIONS.

Articles of agreement made and entered into this 18th day of April, 1890, by and between M. A. Thayer of the town of Sparta, Wisconsin, party of the first part, and the Wisconsin State Horticultural Society, party of the second part, witnesseth that for and in consideration of the sum of money, and other considerations hereinafter mentioned, the said M. A. Thayer, for himself and his heirs does agree to rent to the party of the second part five acres of land, or so much thereof as the party of the second part may desire for experimental planting, at the rate of \$5.00 per acre, per annum, for the term of five years or longer, at the option of the said Society, provided that this article shall not be so construed as to prohibit the bona fide sale of the said land in case the owner or owners shall so desire, and provided further, that in case of such sale, all rights in the trees, shrubs or plants furnished by said Society, and at the time growing on said land, shall be reserved for the benefit of said Society.

(2) The party of the first part hereby agrees to plant of, cultivate and care for on the said land, as directed by the said Society, all trees, shrubs and plants which may be furnished from time to time by the said Society for experimental purposes; and to harvest and make such disposition of the fruits, that shall be produced by such trees, shrubs or plants, as the said Society shall direct.

(3) The party of the first part hereby further agrees that no trees, shrubs or plants, furnished by the said Society, nor any cuttings, cions, buds, suckers, layers, runners, offsetts or fruits produced by the same shall be sold or given away, nor shall any plants from the said trees, shrubs or plants be propagated by himself or any member of his family, or any person in his employ, without the sanction of the said Society.

(4) The party of the first part also further agrees to keep such land or grounds properly fenced, or otherwise protected from the depredations of farm animals, including poultry, and to use all reasonable means to prevent the pilfering or theft of any trees, shrubs or plants furnished by said Society, or any of the products thereof.

(5) The party of the first part hereby further agrees that the said grounds shall be at all times under the care of some competent person, who will cheerfully give to visitors such reception and information regarding the trees, shrubs, plants or fruits, growing on said land and belonging to said Society, as is customary at experiment stations.

(6) The party of the first part hereby further agrees to provide a plat of the said grounds, on which shall be promptly and distinctly recorded the name and location of all trees, shrubs or plants furnished by said Society and planted on said grounds, and to keep record, in book form, of all other data in relation to the said trees, shrubs or plants or the produc-

tions thereof as the said Society shall deem desirable, and to furnish the information thus noted to the Society when required so to do.

(7) It is agreed by the parties to this contract that the owner or owners of the said land may raise and cultivate such crops thereon as may be agreeable to the said Society, using the same for his or their own benefit, provided he or they shall be responsible for all avoidable damages done to the trees, shrubs or plants furnished by this Society on said grounds, but this shall not be construed as limiting the entire and absolute control of the treatment of said land by the said Society.

(8) It is further agreed by the parties of this contract, that for all labor the owner or owners of the said land shall perform thereon for the said Society, and aside from that required for the crops cultivated under the conditions of the preceding article, he or they shall receive compensation at the rate of 15c per hour, provided an accurate account of the time so expended is furnished, but nothing in this contract shall be construed to prohibit the said Society from hiring any and all work it may desire to have done by parties other than the owner or owners of the land.

(9) It is further agreed that the said Society may at any time vacate or cease to occupy said land by giving six months' notice to that effect, and for that purpose may enter upon said land and remove all trees, shrubs or plants, or such portion thereof as it may desire. It is, however, agreed by the parties to this contract that if at any time the said Society wishes to vacate such land the owner or owners thereof may have the privilege of buying any trees, shrubs or plants growing thereon at such prices as may be agreed upon between the parties.

In witness whereof the parties have hereunto set their hand and seal this 18th day of April, 1890,

M. A. THAYER, [seal]

B. S. HOXIE,
Secretary. [seal]

In presence of —

E. S. GOFF,

C. E. TOBEY.

As each contract is a duplicate of the other so only one is published.

SECRETARY.

WISCONSIN STATE HORTICULTURAL SOCIETY — RECOMMENDATIONS TO THE MANAGERS OF TRIAL STATIONS.

In order to secure a reasonable degree of uniformity in the tests of fruits made at the various trial stations, it is recommended that the following methods of planting and treatment be observed so far as practicable:

Set apple trees.....	20 x 20 feet.
pear, plum and cherry trees....	15 x 15 feet.
plants of red raspberry.....	6 x 2½ feet.
of black raspberry.	7 x 2½ feet.
of blackberry	8 x 3 feet.
of currant and gooseberry.....	6 x 3 feet.
of juneberry	6 x 3 feet.
of strawberry.....	8½ x 1½ feet.

In the case of trees, the quincunx method of setting is recommended.

Examine roots of trees before setting, and remove with a smooth square cut, the ends of all main roots that were mangled by the spade in taking up the tree. Cut back the tops in proportion to the amount of roots the tree possesses. If the roots have been seriously injured in taking up the tree, or if the fibrous roots are poorly developed, cut back severely. Dig the hole somewhat larger than the roots require, and use only mellow soil, free from stones or other rubbish in filling. Set the tree no deeper than it grew in the nursery. Work the soil in about the roots, and tread down firmly while filling in. Keep manure from contact with the roots, and unless the soil is extremely dry, use no water either during or after setting, but mulch about the tree immediately after setting with a layer of coarse manure or other litter.

Set other plants only in well prepared soil, pack firmly about the roots, and mulch after setting. If the weather is dry, dip the roots in water before setting, and in the case of strawberry plants, shade for a day or two after.

Berry plants and trees two years old or less may be planted out temporarily on ground not included in the area leased by the society if desired, in case the ground of the leased plat is not at present in proper condition. But it is expected that all trees or other plants belonging to the society will be grown permanently in a group by themselves. Small fruit plants may be set, if desired between the rows of trees, but this will not be insisted upon.

No crop should be grown nearer than four feet to any fruit tree. Nor should the plow or cultivator be used nearer than this. In using the plow or cultivator care must be taken not to injure the trees, either by stirring the ground so deep as to injure the roots, or by bringing the implement or whiffle-trees too close to their trunks.

It is expected that all varieties will be kept labeled. Small fruits by stakes, and trees by labels attached to branches. Copper labels will be furnished for use on trees. For the small fruits, a stake of oak or other durable wood at least 1x2 inches and 1½ feet long, dressed one side is recommended, the planed side to be painted white, on which the name may be written with black paint.

Make note in a permanent note book of the date at which all varieties are set, and of the conditions of the trees or plants. Note the date at

which small fruits begin to ripen, and how long they continue in bearing. Make estimates of yield, and notes of growth of all varieties. Note any injury from insects, diseases or other causes. Note effects of frost and winter upon all varieties.

Keep an itemized account of all labor, and of all expenses incurred for express or freight charges, stakes and other incidentals. It is always best to record such items on the day of their occurrence.

Do not use manure on the ground except by advise or permission.

If a crop is grown on the ground by the proprietor the whole area should be devoted to one crop, in order to preserve uniform conditions. Dead trees should be promptly removed, and when vacancies occur in the rows of small fruits, these should be filled by plants grown from the surviving ones as soon as practicable.

Plants of raspberry, blackberry and grape should be protected during winter by covering with earth, and those of the strawberry by covering with straw or other litter.

It is expected that the managers of trial stations will use the same care in the treatment of grounds leased by the society as is practiced on their own grounds not so leased.

A report will be expected each season in time for the annual meeting of the society, in which should be noted the progress made by the plants or trees of the different varieties, the number and the apparent cause of failure, with notes as to the fruit borne and quality of same. This report need not necessarily be elaborate.

E. S. GOFF,

Director for Wisconsin State Horticultural Society.

REPORT OF THE TRIAL STATION LOCATED AT SPARTA, WISCONSIN, FOR THE YEAR, 1890.

M. A. THAYER, Manager.

The following is a list of fruit trees and plants received and set out at this station during the season of 1890:

Wealthy.....	2	Snow.....	2
Duchess.....	2 1 dead	Arabian.....	2 1 dead
Bell Pippin.....	2 2 dead	Raspberry.....	2
Scott's Winter.....	2 1 dead	Log Arcade.....	2 1 dead
Palmer.....	2	Ripka Malinka.....	2 1 dead
McMahon.....	2 1 dead	Transparent.....	2
Yellow Transparent.....		Longfield.....	2 2 dead
Baraboo.....	1 dead	Barlof.....	2
Newel's Winter.....	2 1 dead	Borsdorf.....	2
N. W. Greening.....	2 2 dead	Tolotosef.....	2 1 dead
Idaho Pear.....	1	Unknown.....	2 1 dead
Windsor Chief.....	3	Total.....	50
McMahon.....	2	Dead or dying.....	16
Yellow Transparent.....	2	Alive.....	34

The above trees were set on the northerly slope of a hill fifteen or twenty feet high in the main valley of the La Crosse. The soil is quite sandy on the hill, changing gradually to black sandy loam as we reach the bottom. When two or more trees of same variety was received, they were set on different soils so far as possible.

The field was in clover, which was plowed this last fall, to be cultivated the coming season. A mulch of green clover was placed around the trees in summer.

Quite a number of trees were received late in the spring, during a dry period, and were not in good condition.

SMALL FRUITS.

<i>Raspberries.</i>		<i>Strawberries.</i>	
Winona.....	8	Tippicanoe.....	13
Progress.....	7	Warfield.....	15
Ada.....	15	Thompson's No. 5.....	6
American Everbearing.....	6	Thompson's No. 8.....	7
Paulina.....	6	Thompson's No. 9.....	7
<i>Blackberries.</i>		Thompson's No. 25.....	7
Thompson's Early Mammoth.....	6	Thompson's No. 26.....	7
Muskingham, all dead.....	7	G. Pacific.....	13
Freed, all dead.....	6	Crawford.....	16
Japanese Womberg.....	6	Yale.....	14
		Viola.....	13
		Eureka.....	13

The above small fruit plants are set on a rich sandy loam, have been cultivated every week throughout the season, and kept free from weeds.

The strawberries have all made a fine growth and will be in good condition for testing the coming season. Several of the raspberries and blackberries came late in the spring and during a dry period, and were not in good condition when received. Some of them have however made good growth and look well.

A very little fruit may be expected the coming season. I estimate the first year's expense at this station as follows:

Expense on stock received.....	\$4 78
Rent of land.....	5 00
Planting, cultivating, hoeing, etc.....	25 00
Total	\$34 78

The work has been under my personal supervision and direction, for which no charge has been made. Labor has been estimated at 12½ cents per hour for man and 25 cents per hour for team.

Respectfully submitted,

M. A. THAYER.

Sparta, Wis., February 8, 1891.

REPORT FOR 1890 OF TRIAL STATION OF THE WISCONSIN
HORTICULTURAL SOCIETY AT ITHACA.

To the Secretary of the Wisconsin Horticultural Society:

SIR — Herewith I submit my statement of expenses incurred for this Station during 1890. The first planting consists of the following varieties: 36 trees; 16 kinds of apples, 2 kinds Russian pears, 5 trees; 1 kind plum, 2 trees; 1 kind chestnut, 2 trees; 6 kinds black raspberries; 1 kind blackberry; 6 plants wine berry; 12 kinds strawberries.

One or more plants of each of the above are alive where any failures have occurred, and most kinds are in good condition. All of the above trees and plants were received by orders of Prof. Goff, and he has inspected them once or twice during the season. There were so many small packages obtained by express that considerable expense was incurred in this way. This will probably be remedied in the future as far as possible. I would recommend the plan of having all planting and obtaining varieties to test under the management of Prof. Goff. That will avoid getting wrong varieties and confusion in methods. I would also suggest that members of the society inform him of anything that should be tried at the Stations that may be new or promising in their own locality.

There are many things besides varieties that may appropriately be tested at these stations, falling properly in management of orchards, vineyards and fruit gardens, such as top-grafting on hardy trunks, trunk protection, pruning, training, winter protection, etc. As the stations grow in age and size some of these matters can be brought into the work without much additional cost.

We have good ground joining the experimental orchard already planted, approved by Prof. Goff, and ready for planting in 1891. I make no charge for ground used in 1890.

Respectfully,

A. L. HATCH.

Wisconsin Horticultural Society in Account with A. L. Hatch.

April 20, 1890, express on plants.....	\$ 25
April 27, 1890, work, four hours	60
April 27, 1890, ex. on trees (Hirschinger)	80
April 30, 1890, work.....	75
May 3, 1890, ex. trees (Phoenix)	60
May 5, 1890, ex. trees (Cotta).....	80
May 5, 1890, work	15
May 7, 1890, ex. trees (Gale & Son).	40
May 15, 1890, ex. trees (Storrs & Harrison).....	1 25
June 20, 1890, stakes and work.....	65
Total	\$6 25
September 1, 1890, cr. by cash from Express Co	60
Balance.....	\$5 65

REPORT OF TRIAL STATION WEYAUWEGA, AT WAUPACA, CO.

WEYAUWEGA, WIS., June 9, 1890.

E. S. GOFF, Madison, Wis.,

Dear Sir.—The following trees and plants have been received and set out for trial:

Chas. Hirschinger, Baraboo Wis.—2 Duchess, 2 T. Transparents, 2 Bell Pippin, 2 Scott's Winter, 2 Palmer, 2 Wealthy, 2 Baraboo, 2 McMahon, 2 Newell's Winter.

Wm. Springer, Fremont, Wis.—2 Morris, 2 Mary, 2 Crocker, 2 Manning's Russetts, 4 Duchess No. 2, 4 Jenny, 4 Wolf River, 4 Heffle White, 1 seedling from Wolf River.

A. D. Barnes, Waupaca, Wis.—2 —, 1 Hibrid Seedling, 1 Wis. Spy, 1 Whitney's No. 20, 1 Gold Drop, 1 Johnson's Seedling, 1 Marianna Plum, 1 Wild Grove Plum.

Wm. Masters, Weyauwega, Wis.—1 Seedling.

J. C. Plumb & Son, Milton, Wis.—1 W. Chief, 2 yr., 2 W. Chief, 4 yr., 1 N. W. Greening.

A. Clark Tuttle, Barsdorf, Wis.—2 Borsdorf, 2 Raspberry, 2 Repka Malinka, 2 Tolatoret, 2 Arabian, 2 Transparent, 2 Boaloff, 2 Long Field, 2 Long Arcade, 2 Glass Green.

Noble, Clintonville, Wis.—2 Nobles.

J. V. Cotta, Nursery, Ill.—2 McMahon (top worked), 2 T. Transparent (top worked), 2 Snow (top worked).

Isaac Gale & Sons, Waukesha, Wis.—2 Kesha, late keepers, 2 Seedling Plum.

Clark Hewett, Waupun, Wis.—2 Wis. Spy, 2 Johnson's, 2 Mathews, 2 Hortshorn, 2 Mary, 2 Jenney, 2 Matthews Fall.

Storrs & Harrison Co., Painesville, Ohio—1 Idaho pear.

C. G. Patten, Charles City, Iowa—1 Duchess No. 6, 1 Duchess No. 4, 1 Duchess No. 3, or Patten's Greening, 1 Sport, 1 Good Peasant, 2 Rockford Plums.

Strawberries—Warfield No. 1, Tippeause, Yale, Crawford, Thompson No. 7, Thompson No. 9, Thompson No. 5, Thompson No. 8, Thompson No. 11, Eureka, W. Pacific, Viola.

Raspberries—Ada, Progress, Winona, Muskingham, Palmer, Alacucan Everbaring, Thompson's Early Mammoth.

Clark Hewett trees are set with a cedar tree from one to two feet from the tree on the southwest side by request. About thirty (30) per cent. of the trees have not leaved out yet, and don't think many of them ever will. The remainder are looking good. The spring has been very backward here, we had no warm weather till the first of June, to speak of.

I am, Yours truly,

FRED A. HARDEN.

Owing to a mistake in shipping, some of the trees were a long time in reaching Mr. Harden's place.

SECRETARY.

SMALL FRUIT DISCUSSION.

STRAWBERRY DISCUSSION.

VARIETIES.

Mr. Coe—I would start with Warfield. (What fertilized with?) So far I have fertilized with Wilson, they pick together, are about the same color and shape, and market well together.

Q. Is your soil like Mr. Smith's?

A. No. The Warfield is much more productive than the Wilson or the Crescent. If the Wilson rusts use Sucker State.

Q. Does the Wilson ever rust so as to hurt its crop with you?

A. It never does. The Haviland does well with us, it is large, productive and a nice green plant.

Q. How is the Jessie as a fertilizer?

F. H. Chappel—It is good when the crop of blossoms come.

J. M. Smith—I have never found anything equal to it.

President—Is it not a fact that pistillate varieties are more productive than any other kind?

J. M. Smith—I think it is.

F. K. Phoenix—I would like to hear from some one who has raised pistillates by themselves.

Prof. Goff—I planted Crescents four rods in extent and got considerable fruit from them. I also grew Crescents in the greenhouse and covered them to keep insects away, and still got a fair share of fruit.

T. S. McGowan—I want to ask Prof. Goff if those (pistillate) varieties are not apt to bear abortive or imperfect fruit?

A. They are.

G. J. Kellogg would recommend the Crescent and Warfield for shipping; reported Haviland too soft for shipping, more like the Jessie; had found only two reports of failure of the Bubach.

Q. Is there anything for very early variety?

A. I think we have it in Michel's Early. I received some plants and they were the smallest, meanest plants I ever set, and they have made the nicest looking plants I ever saw; they are about as large as the Wilson, the same color, and firm and good to ship.

J. M. Edwards—I went out to look at some a gentleman had set, and they had run so they had formed a matted mass. I took up twenty-five and carried them home, it was late in the fall and they made the third setting that year. There are three or four varieties originated by the late Mr. Arnold, one of which I wish to mention is the Alpha, as it is the most profitable of the very early ones.

Q. I would like to inquire about the Early Pacific.

A. A wonderful nice grower but no disposition to fruit.

PREPARATION OF PLANTS.

A. D. Barnes — I cut off roots to prepare plants and trim off the leaves, only leaving two leaves and crown.

C. A. Hatch — If you can take up the plant with dirt adhering to the roots there is no need of losing one. I take a garden dibble and put it down to one side of the plant and push the roots up against it. I trim off to one leaf and the crown.

Q. Where does Mr. Smith get his plants?

J. M. Smith — Of late years we have raised them. We set a bed last spring for next year's crop of plants; we train the runners like spokes to a wheel, around the plant; in the following spring we take those plants to set new beds for fruiting. We do not set those nearest the crown for they will be too long.

President — I would like to ask Prof. Goff what soil plants should be set in to do well?

A. I think it is the rule with nurserymen that you should set them in better soil than they are taken from.

J. M. Edwards — Any good corn land will do well for your plants, but do not over manure your plant bed.

T. S. McGowan — Is it advisable for growers to plant strawberries after corn?

F. H. Chappel — I planted this year after sweet corn. I cultivated most thoroughly and my plants look well.

WINTER PROTECTION.

J. C. Plumb — I will tell you how I am winter-mulching. One acre is mulched with bagasse from the sorghum mill. Last winter I had ten thousand Jessies in the cellar and ten thousand other berries. I kept them that way because I cannot get them in my soil sufficiently early without disturbing the blossoms. I take shallow boxes, count out layers of twenty five bunches, put in a layer and then a little soil and so on until the box is full; they winter beautifully and come out in the spring in splendid condition. I do not allow any water around them.

President Thayer said he used pine boughs for protection and had practiced it for two years. Mr. Barnes thought raspberry canes made just as nice a covering and were as neat to handle.

Mr. Chappel asked if any one used marsh hay? Mr. Barnes had used some two years old. Mr. Smith uses it and stacks again, after removing it, for future use. Mr. Kellogg uses it but does not remove it. Mr. Gray uses manure. Mr. McGowan thought manure would have a tendency to fill the ground with weeds. Mr. Gray allows manure to heat and there is no danger of weeds, he forks it over twice before using.

T. S. McGowan — I wish to ask Prof. Goff if it would not be a good plan to purchase potash to use to destroy the weeds? I practice it and I have a compost heap that costs practically nothing.

J. C. Plumb — I recommend the same soil and cultivation for red raspberries as for strawberries, but when you come to the black raspberries you need a different soil. Too much manure brings the bushes to an enormous growth but we get comparatively no fruit. There is also the danger of red rust. I caution every one to be careful not to manure too heavily if he wants a crop.

F. H. Chappel — A great many acres of raspberries were threatened with red rust a few years ago, but since the dry years have come on I hear no complaint of it. I think we have reason to be thankful for escaping this enemy.

J. M. Edwards — I want to ask Mr. Kellogg if he thinks he can manure too heavily for black cap raspberries?

We applied manure to ours, putting on a forkful this side and that, and our beds yielded us five thousand quarts that year. After we put the manure on we went right through and cultivated, and also cultivated right after picking.

President — I have had a little different experience in mulching raspberries. I mulch with green clover; it keeps the weeds all down. I leave it there and the ground is fresh and moist as needs be, and the fruit is perfectly clean. I believe that clover will, to a great extent, revolutionize the ground. I keep up fertility by sowing clover and plowing it under. In the winter time my teams are all busy drawing fertilizers. My land was worn out, and seemed worthless when I commenced with it.

A. L. Hatch — I want to know if that plan of clover mulching will substitute the wiring up of canes.

President — Not at all. I wire up twelve feet apart. One acre of clover is sufficient to mulch an acre of berries. It is the cheapest mulch I can obtain. It is twice as cheap as it is to draw a fertilizer a mile that is given to you. I believe it would pay, at eight dollars per ton, better than to take fertilizers if they did not cost you anything.

Mr. Coe — The only mulching we have ever used for blackberries is dry mulching. We put it on the rows and also cultivate in the rows. Last fall we had about twenty tons of coarse mulch; we bend down the tips of the bushes and cover them.

L. J. Kellogg — I have had very little experience with mulching. I have used coarse stable manure.

DISCUSSION ON PICKING AND MARKETING FRUIT.

Mr. Phoenix asked Mr. Smith to tell how he got his berries in packages from the vines and how he shipped them.

J. M. Smith — I have a gang of pickers and a superintendent over them. We paid pickers one cent per quart for strawberries and one cent per pint for raspberries. A boy carries the flats and distributes the boxes and another boy puts the boxes into crates, putting the crates into a wagon to be drawn to the cooling room. If the wagon is not there ready to take the

berries, they are covered and not allowed to have the sun shine on them a moment. They are taken to the packing or cooling room and are kept at a temperature of fifty-five degrees. I have found that it does not do to keep them too cool, because they do not stand shipping so well. We put them on the cars ourselves and do not allow the expressmen to handle them. They are always willing to let us do it.

Mr. Edwards spoke of berries being shipped from Oconomowoc; expressmen would not allow the growers to put them on the cars, they did it themselves and handled them very roughly in so doing, and the result was the berries were spoiled on reaching Milwaukee.

J. C. Plumb — At what temperature is the cooling point for berries? If cooled to less than 50 or 55 what would be the result?

A. They will melt down.

Q. Do they really need cooling?

J. M. Smith — I think they do; they will stand shipping longer and reach the market in a better condition than they will if not cooled. We ship to Lake Superior, and berries picked Saturday did not reach their destination until the following Wednesday, and all, except the Manchesters, reached the market in good condition.

Henry W. Ash — Have you been able to secure special express rates, and in what manner?

J. M. Smith — I have been able to obtain special rates for several years past where I ship certain amounts regularly.

President — I require my pickers to sign certain conditions regarding picking, etc., agreeing not to leave without giving three days notice. I use picker's tin boxes, they are numbered and are strapped around them and the berry boxes are numbered to correspond with the picking boxes. The pickers start on rows, in sections, one on each side. When a box is filled the number is called out; one man takes the fruit and fills the cases. If the berries are not picked according to rule pickers do not get paid. I pay one cent per box through the season; strawberries in quart and raspberries in pint boxes. When a picker picks a thousand boxes he gets a premium of one dollar.

Mr. Thayer showed the kind of ticket used by him in tallying the number of boxes picked.

A. G. Tuttle — I have a ticket made of heavy manilla paper, there are letters on the ticket for quarts. One carrier holds eight quarts, most of our pickers bring in full cases of eight quarts. We punch opposite the letter for the amount picked, the ticket is kept by the picker and is the only record made.

Geo. H. Robbins — Will berries ship better in close or open cases?

J. M. Smith — We enclose in cases with a space between the laths to admit air.

Mr. Edwards uses a case having a whole cover, with the sides of the case open.

Mr. Smith uses sixteen quart cases.

Mr. Thayer uses the same.

Mr. Tuttle ships in refrigerator cars and finds they go in better condition if he puts them in the car.

Ripon growers load a car every day and ship for ten cents per case.

J. M. Edwards—Is it as easy to lay down black berries as black cap raspberries?

A. It costs eight dollars per acre. Two men can lay down one half acre of blackberries per day; raspberries can be laid down a little faster.

Mr. Smith said he employed four men who would cover one acre a day. Mr. Thayer only employed two men.

Warren Gray—Shall we cut out old canes before covering?

President—Yes.

Warren Gray—I have always done so until this year and we find we do not break so many canes if we leave the old canes on.

President—Laying down blackberries is a knack, you will be almost sure to break them the first time.

T. S. McGowan—I do not raise many but I lay them down without breaking. I lay them over a stick of scantling and let them remain a week or two and after that they come down easily.

Mr. Hamilton was called upon to give his experience and said: "I have laid down so many of these blackberries in public that I have got tired of it and I sometimes get tired of it in the field. It is necessary to dig a larger hole on the underside of the canes to lay down an old raspberry than a blackberry. I do not think a man can lay down an acre of blackberries without breaking some, but we have too many canes, and it does not injure the fruit crop to break a few of them. Remove enough dirt from under the plant to make room for the crown and at the same time you undermine the plant with a fork press it down and you can cover the canes very easily by holding them down in this manner. I have had more trouble from the carelessness of the second man in putting his foot on the plant in a manner to push it back instead of the way it is to be laid. Some succeed better than others in this work. Some people say, when I go toward a hill it begins to lay down. I remove the old brush from the row after bearing is over. If there is a very firm base to the plant it will be more work.

Q.—Have you any plan for clearing out the brush?

A.—I generally carry it out.

President—I have a better method than that, I use a little cultivator to which I hitch a horse and soon clear out the brush.

A. I. Gale—I would like to ask if any one present has had trouble in covering with clay soil?

Geo. R. Robbins—I have had trouble in that way, I found it made too warm a covering. I now use straw and like it better; the wind circulates

under the straw and makes a pretty cold place for mice, consequently they do not disturb the canes.

C. H. Hamilton — I think most of people cover too deep and hurt the berries. Paper would do if it would stay on. It is not freezing, but the sun that injures the canes.

J. C. Plumb — We do not want a bit of old wood taken out until spring. I discovered in picking time that in Mr. Coe's field the old wood was all there and he said the old wood did not do any hurt, it served as a mulch.

Mr. Coe — We only leave canes in red raspberries, and they do not hurt them, they break right up and do not give us any trouble.

A. G. Tuttle — What time do you remove the covering from plants in the spring?

Geo. R. Robbins — I remove it when the buds are ready to grow and when vegetation starts.

A. G. Tuttle — We lay down to protect from the extreme cold of winter and as soon as that is over we think it is best to take them up and let them have air.

Discussion closed and C. A. Hatch, President of Wisconsin Bee Keeper's Association, took the chair.

Wednesday afternoon was given up to the Bee Keepers of Wisconsin, and the following address by the editor of the *American Bee Journal*, Thomas G. Newman, "Our Trip to Wisconsin," is taken from that valuable paper.

It is difficult for us to leave the office during the months of December, January and February, but receiving such a pressing invitation, coupled with the assertion that we had declined all previous invitations to attend the state convention, and that the bee keepers of that state were anxious to make our personal acquaintance, we concluded to go and take the consequences of our absence two days.

President C. A. Hatch was at the depot to meet and conduct us to the capitol building, where the horticulturists and bee-keepers were holding a joint session. We received a hearty welcome, and were soon called upon for a speech, upon the question under consideration, which was, whether the two pursuits of bee-keeping and horticulture were well adapted to each other, and could be practiced in harmony.

We complimented those present upon the excellent and harmonious relations seeming to exist, and upon the fact that quite a number of them were actually engaged in the two branches of business, and in practice had found them to be very well adapted to each other.

We then remarked that some few horticulturists had ignorantly opposed their neighbors who were bee-keepers, and had in some cases appealed to the law; but such a meeting as this would do more to harmonize the interests than a thousand lawsuits. Here matters in common could be

discussed, and methods adopted which would make and preserve harmonious relations, remove prejudice, and relegate envy to the remote past. In substance we then remarked as follows:

Shakespeare very sagely remarked: "Let me not know that I am robbed, and I am not robbed at all." On the other hand, many imagine that they are robbed when they are not robbed at all!

Some persons think of the bees that they are robbers—and they openly charge them with robbing the clover fields of something, so that the clover does not make good hay, etc., but the facts are the very reverse.

Bees are of great advantage to the clovers as well as to other bloom, and without their aid in fructifying the flowers, many a plant would cease to bloom—and even to live! They absolutely require the visits of bees or other insects to remove their pollen-masses, and thus to fertilize them. Hence, Darwin wisely remarks, when speaking of clover and heart's ease: "No bees, no seed; no seed, no increase of the flower. The more visits from the bees the more seeds from the flower; the more seeds from the flower, the more flowers from the seeds." Darwin mentions the following experiment: Twenty heads of white clover, visited by bees, produced 2,990 seeds; while twenty heads so protected that bees could not visit them, produced not one seed."

Here in Richland county, a few years ago, a farmer conceived the idea that the bees damaged the clover, and sued his bee-keeping neighbor for damages, because he imagined that his sheep did not prosper, on account of the presence of bees in his pasture.

This ignorance was a God-send to apiculture. It brought out such an array of testimony as to the great advantage that bees were to the clover fields, that now it is difficult to find many so ignorant as to claim that bees are anything but a blessing to fields and flowers—to plants, trees and bushes. They make it possible to produce large crops of clover seed, and fill the land with richest fruit. Many fruit-growers now even keep bees, not for the production of honey or wax, but for the especial purpose of fertilizing the early blossoms, thereby increasing the fruit crop.

Nature hangs out the beautiful and variegated colors, in order to call the attention of the insects. Dainty repasts are provided in the little fountains, distilled and welled up, drop by drop; and the aroma invites the bees and other insects to "come to the feast!" Why all this design in Nature? She wants their fertilizing aid. The flowers need the visits of the insects to carry the pollen masses from blossom to blossom, in order to fructify them, and cause the fruit to form, abide and ripen—to gladden the hearts of fruit-growers, and fill their pockets with skekels.

The horticulturist may dig graft and bud, but what will the returns be without the labors of the bee? The Creator has provided no other means for the fertilization of flowers but the visits of insects, and there are no other insects at that time of the year to flit from flower to flower. The body of the honey-bee is wisely adapted to this purpose, being covered with

fine hairs, invisible to the naked eye, which brush off and carry the fertilizing powder to the germ that requires it. The fruit sets better even when the tree has perfect flowers, containing both pistils and stamens, if pollen from another flower, or better, still, from another tree, is brushed upon its germs. Who has not observed that a long-continued rainstorm, occurring during fruit bloom, and preventing these little messengers from their rounds, is followed by a failure of fruit.

The bee-keepers and horticulturists should, therefore, always be fast friends—their interests are linked together in a way which should make them “brothers, all!” The prosperity of the one aids in the advancement of the other!

When light and truth enters the human mind, they drive away much of the foolish opposition and disagreeable feeling which is born of envy, and flourishes most among the uninformed and easily persuaded people, who think that their rights are invaded, or their revenues decreased by some other vocation.

A. D. Barnes, of Waupaca, stated that he had a short paper on the same subject, and would like to present it, so that both papers could be discussed at the same time. In his prefatory remarks he said: “Force trees early in the season so they will ripen up the wood well before winter sets in. If you will ripen up the wood early in the fall, trees will not winter kill.”

SUCCESSFUL APPLE ORCHARDING: OR, HOW TO MAKE IT SO.

BY A. D. BARNES.

1st. Select a good site — a well-drained northern or northeastern slope, well protected from south and west winds, with a chocolate, clayey loam soil. The higher and the stonier, the better it is. But many other sites and soils, with proper care and management, can be made successful.

2d. Prepare the soil by plowing and sub-soiling deep in the fall. Plow again in the spring, and plant very early. I believe that many trees suffer and die from drought—thawing and freezing—from the fact that the roots are compelled to grow too near the surface.

3d. Plant none but adapted varieties. I am a strong believer in adaptation and acclimation. Plant in broken or alternate rows, 14 feet north and south by 24 feet east and west. Incline the trees to the southwest, with the lowest and heaviest branches on that side, to aid in shading the trunk, and the earth around the tree. Plant a low-top, bushy white cedar about two feet south of the fruit tree, to prevent sun-scald, thawing and the ravages of the borer — for the borer never works in the shade. Other devices

will do, but not so well; for the evergreen is always there when it is needed, and in many cases will do valuable service as a wind-break.

4th. Dig holes wide and deep—the wider and deeper the better. Fill the holes partly full of good, strong surface soil. Leave a small mound in the center of the hole to set the tree on, so the roots will set in natural position, pointing down, and not up to the sun. Fill in around the roots with fine surface soil, and be particular to straighten out all fibers and to work the earth in between them with your fingers. Be sure that the earth comes in close contact with the roots, but do not pack it too hard. If the earth is dry, use much water while planting the tree, but none after it is planted: Level off the ground and cover the wet dirt with dry earth, leaving the tree raised a little—for it will gradually settle if the hole was deep and particularly filled with loose earth. Do not consider the tree planted until it is well staked and tied so it will stay in position, and thoroughly mulched with manure or litter of some kind.

5th. Plant the orchard to potatoes or garden vegetables for a few seasons—for potatoes and vegetables do not absorb or use up the same elements and properties that the trees require. Cultivate thoroughly the first and middle part of the season. Stir up the earth around the tree with a fork. Do not cultivate too closely with plows or cultivators, for fear of breaking off the roots and causing the tree to bleed, or to throw up water sprouts, both of which are very injurious to the vitality of the tree. Keep off all bugs and pests. Wash the trees at least once each May with soft soap suds.

6th. Remove the mulching and some of the earth from around the tree about the first of September, to check the growth of the tree, to cure out the sap, and to harden up the wood. Apple trees never winter kill if the wood is well ripened up early in the fall. Just before it freezes up in the fall, make a mound of earth around the stem of the tree to hold it firm, prevent ravages of mice and moles, and more particularly to hold the frost in the ground at the roots and butt of the tree—to keep the sap down when the warm days of March come, which are so very destructive. These banks will not thaw clear through to the roots (especially if the evergreen referred to has been planted) till the weather is warm and well settled for spring, thus holding the sap and blossoms back till the season is warmer, when the sap will not sour and the blossom germs will be stronger and set a healthier crop of fruit.

7th. After the weather is suitable in May, level down the banks around the trees, and mulch again. When you get the orchard well started, seed down to clover. Cut one crop early each season, and leave the second crop to serve as a fertilizer and to keep the ground moist, and from thawing and freezing often.

8th. Prune carefully with the pruning knife or shears each season, just long enough before the sap starts in the spring so the wounds will sear over and not bleed. Do not let the trees over-burden themselves with fruit, but

remove the smaller and inferior specimens as soon as set; for a tree will not be hardy, nor will the fruit be good if overburdened.

Pardon recapitulation, for I wish to emphasize *these facts*, and get them firmly impressed on the Planter's mind: 1st. A suitable site. 2d. Good, fresh, adapted and acclimated stock. 3d. Good preparation of the site, and proper planting. 4th. (And which should be most heeded) good cultivation and judicious regulation.

By my process of cultivating, banking, mulching and removing of the mulching, I can regulate and govern the growth and thrift of the tree as well as you can the growth and thrift of a short-horned steer (or one without horns, either); but mind you — *you must* fertilize and cultivate for the benefit of the *tree* and the *crop* you propose to grow on the tree, and not for the benefit of the crop you purpose growing between the trees.

Finally—Have faith, be faithful and diligent, and your efforts will prove successful.

DISCUSSION.

Chas. Hirschinger — Mr. president, my name is down on the programme in connection with this question: Does Low Topped Apple Trees Prevent Sun Scald? and what I have to say will be short, for Mr. Hatch and Mr. Philips took away nearly all I had to say, and now Mr. Barnes comes along with his evergreen theory, and it is all gone.

I think if you are going to kill the tree you might as well let the sun do it as to put out an evergreen to do it.

I managed to get some of my trees so low — about six inches from the ground — that the weeds did not let the sun get to them to scald them.

I have found some trees sun-scalded eleven feet and four inches from the ground, sun-scalded in the branches. I found many trees that way. If low topped trees prevent sun-scald, it must be done when the leaves protect them. Now I am going to make a wild statement, that the scald is done before the leaves are there. I would rather have a lot of suckers than a low topped tree, or plant a black-cap raspberry on the south side of a tree than to protect it by trees.

The sun-scald can be prevented on the trunk; you will find that location has more to do with it than anything else.

J. C. Plumb — I want to say a few words about each of these papers. I am agreeably surprised to see Mr. Hatch take those fundamental theories, and I hope this question will be considered from an experimental standpoint. The solution is to determine just what stocks are adapted to this practice.

The Virginia is the most free growing of the crabs. The successful growth covering a period of over twenty-five years ought to be a test, they stand there to-day as perfect examples of the success of this method of top working.

Mr. Whitney say: "I would practice top working on all the trees in my orchard." Mr. Skinner planted one thousand Ben Davis trees and increased the number to ten thousand; he marketed his fruit in Chicago. One of his neighbors got the Ben Davis craze, he had about a dozen Duchess trees and wanted Mr. Skinner to top work his trees with Ben Davis; he did so, and they stand there to-day, seven of them, as an example of the success of this method.

Mr. Wyman, of Kewaunee—With regard to the Ben Davis apple I will say that I sampled some in Green Bay and they tasted very differently from those we grow in Kewaunee. I found a good many people did not like the Ben Davis apple and it did not pay me to raise it; what makes the difference? If the quality of the Ben Davis apple was better I could raise it and make money on it.

J. C. Plumb—It wants about twenty days more of good fine weather to ripen its fruit than other winter varieties. I know an old Wisconsin crank in the southern part of Missouri who would not allow his trees to be pruned, not a branch, and he has been laughed at by lots of horticulturists because of his peculiar notions, but now he has got the laugh on them for he is never troubled with the borer, the dread of all southern orchardists and I think that is the secret of his exemption from that pest.

Chas. Hirschinger—I am pleased to see the course Mr. Plumb has taken; he has given us a case of a Wisconsin crank in Missouri and how he deals with the borer. I want to say to him that I have never seen a borer in the Baraboo region; and the lower down you get your top the more scab you will get. I do not think we can afford to be cranks all our lives. I do not believe in the evergreen theory, it is a humbug—it may be a good thing for those who have evergreens to sell.

A. G. Tuttle—We have come right back to where we were thirty years ago. I planted my trees to get them as low topped as possible but the forks proved a great disadvantage. I had twenty Golden Russets all broken down and I really wished the winter would kill them.

A. J. Phillips—I think gentlemen that Mr. Ash has raised a question here this morning that is of more importance than this subject of protection.

The Virginia crab has the strongest crotch of any tree that grows; you can stand on the crotch and pick the fruit from the limbs. I have been taking off lath from protected trees for three years and I have Virginia crabs that will bear a bushel of fruit to the tree next year. Mr. Brand's (of Minnesota) plan to protect the trees by making a box and filling with earth is too expensive, too much work. As to evergreens you can raise the hardy tree just as well as you can raise the evergreen and keep shearing it back to keep it the proper height, you can protect your trees with lath for a cent a tree for seven years. The best trees I have, after twenty years setting are trees that have a smooth trunk about four feet high. I would let a Virginia crab grow about four feet high and then

top-work on that. I have tried the Haas but it is not vigorous to grow and ripen a crop.

A. L. Hatch—I want to call your attention to some salient points of the argument presented here on this topic, Mr. Barnes suggests shade for preventing the depredations of the borer, now the only borers I have are the kind that grow right in the shade. I have taken as many as seven out of a tree. Mr. Barnes also suggested that trees will never winter kill if their bark is fully ripened. Now what has become of the Pewaukee trees that were such great trees for early ripening?

J. C. Plumb—Just as I expected, Mr. Hatch will do his share of the whitewashing. I asked Mr. Whitney what he did for his trees to protect them from the sun-scald and he said, "whitewash, whitewash them; it makes people look at them and ask questions and so does good in two ways."

Secretary—I met an old gentleman on the street in Evansville last summer who said to me, "Mr. Hoxie, I have read the report of your society, and I have been very much amused to see the great number of opinions expressed by the different fruit growers. Now, when doctors disagree, who shall decide?"

I said to him, Wisconsin is a large state, and consequently there will be a great difference in experience. One man living in a locality where the soil is sandy will find that certain varieties will succeed with him, while another, living on a clay soil, will find certain other varieties succeed best, and so it will be found that each one is governed by the conditions of soil, exposure, etc., and the experience will widely differ; hence, all these important points should be taken into consideration.

A. J. Phillips—I wonder if any bad results have been experienced from whitewashing, by closing the pores of the trees?

F. K. Phoenix—I am so much of a crank that I have tried whitewash, brown paint and black paint. I would try anything to stop blight.

A. J. Phillips—I think you will stop the blight, for with that paint on there you will kill the tree in about two years.

J. M. Edwards—Did the trees you did not paint fire blight?

A. Not all of them. Do not paint your trees because I advise it for I do not so advise.

Will Mr. Lyon tell us if he has had any experience in Michigan with whitewashing trees?

Mr. Lyon—I never did such a thing and I do not believe in it. I believe in low branched trees, but do not believe in the theory that those branches that get the best light will bear the best fruit. Low branched trees are easier to handle, one reason is, they are less liable to break. I have never seen a healthy tree sun-scalded or attacked by the flat head borer; the round head will attack anything. I recollect seeing an orchard of a neighbor attacked by the borer when it had been sun-scalded. I saw the scars on the tree where he had cut the borers out. While visiting or-

chards of southern Michigan and Wisconsin, I saw a great deal of blight and saw that it attacked young trees before they had borne a great deal of fruit; these orchards were along the lake shore of Michigan and Wisconsin. I think the influence of water has something to do with the tendency to the blight.

Dwarf pears and cherries are grown all along the south shore of Lake Superior, although it is not an agricultural country, and I think water protection has something to do with the success.

A. G. Tuttle — All I know about the blight is that it is worse the nearer you get to the interior, or near the dry atmosphere.

Henry W. Ash — Air drainage is one of the essential things in our orchards. The idea became popular in our neighborhood that setting out evergreens was a good thing for the protection of orchards; it certainly was a success as regards the evergreens, but a failure as regards orchards.

G. J. Kellogg — I want to ask Mr. Hatch what kind of crabs he grafted with Pewaukee and Ben Davis?

A. L. Hatch — I grafted on the White Arctic, Trancendent Hyslop and Peach crab. I did have some success with the Ben Davis top-grafted when they were nearly gone otherwise.

The reason Mr. Lyon did not find fire blight up in those regions, was not due to the influence of water simply, but it was from the same reason that people, years ago, in California could hang up meat and it would keep fresh for several days without other precaution; it cannot be done there now. It is because after a country becomes settled, the air is filled with bacteria.

The Alexander is more subject to blight than any other variety.

Mr. Lyon — We have had the blight for fifty years in Michigan, and seldom has it been injurious to the trees. I quite agree with the gentleman, that the theory of bacteria is correct, but your experience is so different from Minnesota, Iowa and Michigan.

The time allotted for discussion having expired the president called for a paper by Mr. Hatch.

PROTECTION; OR OUTWITTING OLD BOREAS.

BY A. L. HATCH, ITHACA.

If we have fruit it must be borne upon a tree, plant, or vine that has lived through the winter season. Thus it becomes necessary to have hardy trees and plants. If we outwit "Old Boreas" we must be sure, 1st that our trees or plants have sufficient inherent hardiness to withstand the coldest winters; 2nd, that our cultivation, care and management place the trees or plants in the best possible condition when winter sets in; 3rd, that we give adequate protection from the extremes of heat and cold during the season when growth is suspended.

Among the methods widely advocated for orchards in the west is that of close planting. It has been held that one tree would protect another from winds and the effects of winter sunshine. This sunshine it is said produces "sun-scald" of the trunk — kills the bark on the southwest side — alternate freezing and thawing being very injurious. Now, if a tree top near by breaks up the sun's rays that fall upon the trunk the heat would not accumulate sufficiently to do much injury during mild winter days and no "sun-scald" would result. What would protect the outside rows is not so clear. Perhaps we should plant none or else make a plan for it as the Irishman did for the chipmuck that digs its hole without throwing any dirt out — "Jist begin at the other ind, be jabbers!"

Another remedy for this "sun-scald" is low tops — short trunks and limbs branching near the ground. Both of these methods rest upon the same general principles — breaking up the sun's rays, etc., and both involve the orchardist in the same difficulties. Whoever possesses an orchard fifteen years or more of age realizes these difficulties and probably has some samples of this "sun-scald." While we can find abundant evidence of its effects among such kinds as Walbridge, Utters, Golden Russet, etc., it often shows too plainly on Oldenburg, Tetofsky, Haas and Wealthy. We can also see its effects upon many forest trees — natives of our woods.

Should we depend upon close planting and low tops to remedy this trouble we would find increasing labor each year in cultivating and managing our orchards. Low limbs and clashing tops make the removal of grass under the trees difficult when the orchard is in clover, and pasturing with sheep or swine becomes impractical for that purpose or for destroying the wormy, fallen fruit. The animals would browse the lower limbs and eat the fruit. Besides this very low limbs produce the most scabby fruit. If too closely planted, low topped, and uncultivated, the orchard soon loses its vigor and fruitfulness, the foliage would suffer more from parasitic fungi in the form of mold and scab, the fruit would be small and poor and insect injury greater. Mice and borers would harbor in the unharvested grass and carry on their depredations.

Top grafting on hardy stocks is another method that is recommended to secure sound trunks. The theory is to grow a siberian or hybrid apple tree of known hardiness and vigor, and when of suitable size, graft the desired kind upon it four or five feet from the ground. Many failures in this line leads us to the conclusion that several kinds of our crab trees are not good stocks for this purpose. A few successes also leads us to believe that there are kinds that may prove very useful for this purpose. We have some Ben Davis and Pewaukee grafted in that way that are quite fruitful too, while trees grown in the regular way have all failed with a single exception. Once we had quite a number of each kind bearing from one-half to two bushels per tree. If there is nothing in top grafting on crab stocks, why do our top grafted trees live while the others have died? If we can grow Ben Davis and Pewaukee in that way, what is to hinder growing other and

better kinds in the same manner? Who knows but what some of our fruit growers have not already found a hardy vigorous tree of the crab family that will be a good stock upon which to build better orchards that will prove hardier and more reliable than those we now have.

DISTANCES TO PLANT.

Here at the west, orchard trees are largely planted twenty feet apart or even less. At the east where land is much more costly, thirty to forty feet is the rule. Now if we are to have orchards we can cultivate and manage properly, it is plain that we must have higher tops and more room than such close planting and low heading of trees can give us. This may increase the necessity for trunk protection. Therefore, we may appropriately consider that matter.

TRUNK PROTECTION.

For protecting tree trunks to prevent "sun-scald" and for other purposes several methods have been proposed. Mr. A. J. Phillips, of West Salem, has used lath woven closely together with wire and set on end around the trees. This protects against "sun-scald," rabbits and mice. It has the disadvantage of being somewhat expensive and difficult to apply, especially where the trunks are crooked or do not conform to the length of the lath. Still, if the trees were trained for it, it would have the advantage of being durable and efficient. Boards fastened in trough shape and set on the southwest side of the tree has about the same effect as far as the sun shine goes, but is not a defence against rabbits. Strips of basswood bark cut of the right size and put around the trees are also among the articles recommended, and if well put on should serve a very good purpose. Pres. Smith tells us of an orchard in the eastern part of the state that has been wrapped in hay or straw from the time of planting. He reports the success of it over and above other orchards in the neighborhood as being very considerable, and apparently demonstrating the value of trunk protection.

Lately one of the fruit men of Minnesota has published his plan for this purpose, as well as to prevent absolute winter killing. He says: "Make a box of boards eight inches wide and the height of the tree. Set it around the tree and fill with fine earth. Bank up outside a foot high, and after the ground freezes cover the bottom with straw manure. Remove the straw, box and earth after frost is out in April." He recommends replacing the box and earth in October. He makes very strong claims for this plan, but we have no evidence of its having been tried any length of time or extensively.

Whether protection during summer is desirable or not can best be told by trial, but it is likely that it may prove useful. There are several other things used for tree protection, including building paper, cloths and newspapers. not especially attractive in efficiency, cost, durability or

ease of application. Whitewash has also been used with various claims for its usefulness in lessening the effect of sunshine in winter, cleansing the bark and protecting from insects, especially borers. When used with a mixture of some insect poison it certainly possesses some merit. While each of these methods answer fairly well it is to be admitted that none of them are entirely satisfactory.

The desirability of trunk protection is much more generally admitted than practiced. If, however, a feasible plan can be adopted it is probable that it may become more popular as its practice demonstrates its use. What then are its requirements?

First, It should be sufficiently dense to protect from the bad effects of sunshine, cold and winds.

Second, It should cover all exposed places where injury is liable to occur. It should reach up among the branches to protect them at the point where they join the trunk. That point is the weakest part of a tree as far as winter killing goes. Severe cold will cause injury in the forks sooner than elsewhere on the tree. It should go around the trunk completely for several good reasons, including that of protection against vermin.

Third, The material should be adjustable to the tree whether crooked or straight, tall or short, large or small. The material should be such as will readily conform to these conditions, being bent, lengthened or shortened at will.

Fourth, It should protect thoroughly against rabbits, mice and insects as far as their habits make such protection needed. Certainly it should not be a shelter or harbor for vermin.

Fifth, It should be durable and economical. If all-the-year-round protection is to be given then the protection ought to endure two or three years, or until growth or natural causes makes its removal or renewal desirable. Of course cost is always an element in every problem of fruit culture. If we can do the work for one cent and have it fill every requirement, then certainly it is more sensible to choose that method than one costing five cents per tree.

To sum up the requirements then we have:

- 1st. Reasonable density.
- 2nd. Complete covering.
- 3rd. Adjustability.
- 4th. Proof against vermin.
- 5th. Durability and economy.

WHAT MATERIAL BEST COVERS THESE REQUIREMENTS?

After consultation with Prof. Goff last season, we prepared material and wrapped one-half of the trees in our experimental orchard. The material used was straight rye straw steeped in whitewash containing some crude carbolic acid and London purple. This was set up on end about the trees and tied in four or five places with wool twine. We could easily adjust

to any shaped tree and let it go up among the branches along the trunk as far as we chose. As we expect to spray our trees for insects each season, we can give the straw a sprinkling and think it will thus fill every requirement when thus prepared, put on and treated. We expect the rains to carry the poison downward where it will be ready for borers and mice. Should any codling moth make its cocoon in the straw it is likely that sufficient poison will reach it to kill it. For newly planted and all young smooth barked trees we feel confident that this straw protection will be quite advantageous, especially in the summer when very dry hot weather prevails. It is possible that summer covering may make the bark tender and thin and that exposure to air and sunshine from the 1st of August through the last of the season may be a benefit. Still we think that with material so well ventilated continuous protection will be best. Now we freely confess we have been preaching what we have not practiced much. Still, is it not true that we often neglect such things because we have no well considered plan to work on, and because they do not fall within our observation as practiced by others? With oranges often sold cheaper than apples this winter here in Wisconsin, haven't we every incentive as fruit growers to consider well every plan to grow fruit and "Outwit Old Boreas?" If we can make our trees free from "sun-scald" by trunk protection, then let us give trunk protection. If we can grow better trees by giving more room and cultivation, then let us be more liberal in these matters. If we can save our trees and vines from the weakening effects of fungus diseases and insect ravages by spraying, then let us learn how and try. If hardier trees can be grown by top grafting on hardy stocks, we ought to find it out. Perhaps if we shall combine all these things in our orchard management we may find more profit and reliability in fruit culture than we now realize.

G. J. Kellogg, delegate to Minnesota State Horticultural Society presented the following report:

Mr. President, Ladies and Gentlemen:—Pursuant to appointment I met with the 24th annual winter meeting held in Minneapolis January 20th to 23rd inclusive. Hon. Wyman Elliot called the convention to order *on time*. Sam'l B. Green, secretary. The first business after the opening prayer was the papers and discussions on small fruits. Papers were presented by M. Cutler, F. H. Fiedler, M. Pierce, William Lyon, Dewain Cook and yours truly. The majority of reports agreed on Crescent, Capt. Jack, Warfield, Jessie, Bubach and Wilson on clay soil, and where it does not rust. Pioneer was reported as one of the best perfect flowering varieties. Many failures of Wilson and some of Lady Rusk were reported. Snyder, A. Briton, and Taylor's Prolific seemed to be all the blackberries reported favorably.

A. W. Latham, Excelsior, the newly elected secretary, made a splendid exhibition of grapes from cold storage, of Lindley, Brighton, Martha, Em-

pire State, Iona and Concord, as fresh and nice as when picked. He also gave a practical paper on Grapes and Apple Growing, about Lake Minnetonka.

George Robinson reported on grapes, having planted 1,600 vines. His paper was full of good and practical suggestions; he placed first for red, Poughkeepsie; 2nd, Ulster's Prolific. Jessica as first for white, being the best early and doing better if grafted on a strong grower. Worden and Moore's Early had both friends and foes. Some reported Worden as dropping from the bunch and many reported Moore's Early as unproductive.

The Bee Keepers occupied two sessions of the four days, claiming many points of interest identical with the fruit growers. Reports from the experimental stations were full of interest and much of practical utility.

Prof. Green, the retiring secretary, gave a lengthy report of over 100 varieties of new Russian apples, 50 of which were checked in value above Zuzoff.

A. Peterson's report favored Charlemoff, Christmas, Cross and White Pigeon as the best four. Wm. Somerville, of Viola, reported 200 varieties of New Russians on trial, and has fruited fifty kinds for profit in orchard; holds Duchess, 1st; Wealthy, 2d; Longfield, 3rd; Repka Malenka, 4th; Malinda, 5th, and of crabs, Gideon's No. 6, as best fall crab, and Martha, 2nd.

E. H. S. Dart, of Owatona Experiment Station, gave a printed report of eight pages, naming 125 varieties of Russians, about the same number of seedlings, crabs, hybrids and standard sorts on trial, 14 varieties of plums, 6 of pears, 6 of cherries both of which were mostly Russian, 69 varieties of forest and ornamental trees, 23 of evergreens, 31 of shrubs and creepers, closing his report recommending tree belts for the prairies and protection to our northern forests.

Mr. Dar offered a resolution stating there were no Russian apples hardy enough for Minnesota, a substitute was adopted saying that with their limited experience they were not prepared to recommend a list for general planting.

Prof. Green gave a valuable paper on fertilizers, recommending the St. Paul Tankage, (which is the refuse from the steam rendering establishments) as the best commercial fertilizer, he using 1,000 lbs, per acre, with satisfactory results, cost of this tankage 10 to 15 dollars per ton,—he recommended the use of ashes leached and unleached as valuable but cautioned against applying them with manures. Would bury old bones in ashes or manure pile to help decompose them, would not burn old bones thereby destroying much of their value. Cautioned against putting any confidence in fertilizers using marles, as there is no value in marles.

Winter protection to trees was advocated by most of the members as well as protection against summer heat; shading of the bodies up to the branches was generally agreed as necessary.

O. F. Brand strongly advocated boxing the trunks and filling with

earth for the winter and removing in spring, some were in favor of Phillips lath and wire protection, some in favor of brown building paper. Mr. Gaylord had used tarred building paper and injured his trees. Mr. Price wanted no protection but low heads—trees grown as bushes—and one lady stated that the Wealthy with them was worth more after it was dead than during its first life, as the second growth from the roots were more vigorous better leaves and produced better fruit. E. Gaylord recommended setting three trees together, about eighteen inches apart in the same hole.

E. Gaylord, delegate from Iowa, exhibited nine kinds of native trees affected by blight also apple trees—all apparently injured by sun scald in summer and winter.

M. A. Thayer was present two days of the convention and was very kindly received and gave a very interesting talk on succession of small fruits and the application of green clover as manure applied in summer as mulch.

Wm. Somerville gave a very favorable report of the horticultural work at their farmer's institutes, occupying thirty minutes each session often taking a portion of the time assigned to the hog.

Mr. Emery being sick the subject of the Columbian exhibition was not presented as was expected, but the plans laid, committee appointed and the many tables of fruit on exhibition including about fifty varieties, behooves us to do our best if we expect to beat Minnesota.

An invitation was extended to the American Nurserymen's Association to meet in Minneapolis next June, a reception committee of twenty-five was appointed, a hall provided, an address given before the convention by Mayor Winston and everything done to anticipate the wants of the 800 coming next June.

The report of J. S. Harris on seedlings was very interesting and as his researches extend far into our state and he is really one of our members his report ought to go into our transactions by special request.

To attempt to give you any satisfactory report of a four days meeting in the short time allotted me would be impossible—the efforts made to enlist nearly a score of professional men to furnish or be present to read their valuable papers, the wide awake men that are conducting sixteen experiment stations, and their reports; the zeal manifest in making the exhibition of fruits, flowers and vegetables so grand a success; the free entertainment of members as well as delegates, all tend to increase an abiding interest in Minnesota horticulture. The tables of fruit represented about 50 kinds. The show of plants, cut flowers, designs and roses was the finest ever made in the west at this season of the year. The show of roses by R. J. Mendenhall exceeded anything on exhibition; we were informed that the cut flower sales from his green houses for 1890 exceeded \$50,000. The convention were invited to visit his grounds. Among the roses he ex-

hibited were American Beauty, the Queen, the Bride, Wm. F. Bennett, Sunset, Duchess of Albany, etc.

In company with President Elliot⁸ and members of the convention we visited the extensive gardens, under glass, of Fred Busch. He has one and one half acres under glass devoted exclusively to raising lettuce and early cucumbers for the northern market.

Minnesota is ahead of Wisconsin in her efforts to look up, originate and bring out new fruits, in testing all new varieties at her experimental stations and the zeal and united effort of her membership, and while northern Wisconsin and Minnesota are for 250 miles side by side in territory, it behooves us as a society to cultivate the closest relations in a united effort to develop northern horticulture.

THE PARENT'S PART IN THE EDUCATION OF THE CHILD FROM A TEACHER'S STANDPOINT.

BY MISS LIZZIE GILLIES, EVANSVILLE.

Ever since that dim "in the beginning," our world has been enlarging to us. No longer do we live on a narrow plain bounded by the near horizon walls, but in a universe whose height the human mind cannot reach, whose breadth it cannot span, and whose depth it cannot fathom.

The heart of the individual also proves a little world of whose dominions we dare not prophesy, for upon it are acted in miniature all the scenes of strifes, victories and conquests experienced in the outer world.

That little, dimpled, blue-eyed babe, in the palace of a king, in the cottage of a peasant, in the home of plenty, intelligence and virtue, or in the hut of squalor, ignorance and vice, who can say what the outcome of that life will be.

Men in advanced and even in middle life often speak of the companions of their youth occupying positions of height, or sometimes depth, of which they never dreamed them capable.

Observation teaches that it is not the noble-born who always make the most of life. It is a matter of common remark that the valedictorian is scarce ever heard of, after graduation.

While we often turn away in disgust from the scum and slime of impure waters, to turn once more and see upon its bosom the pure and beautiful lilies. Into this enlarged world, "where all things are possible," come the little 19th-century babes, born "an heir of all the ages," innocent, it is true, of their noble heritage, but with no less right to all the beauty of its riches. Nature has appointed the parent guardian of this child. And he is responsible to the child, to God and humanity for the manner in which he

administers its affairs. To him chiefly belongs to see to it that nothing is done that will defraud the child of its inheritance.

When the parent takes that child by the hand and leads him to the door of the "little red school-house," the teacher must necessarily assume no small share of the duties of guardian. But there still remains to the parent the greater share of the authority and the larger part of the responsibility.

In the first place it is the parent's privilege to see to select the individual to whom he is delegating so much. If his privilege, then his duty to see to it that such a one is worthy of being trusted. As a matter of fact, the parent does demand a high standard of morals in the teacher of his child, and he has been rewarded so well that it can not but be observed that the average public school yields a better moral influence than the average home.

But as some one has said, "The home is not only the unit of state but the nursery of men and women. No other institution can take its place, and no other agency at its best can be more than an aid." But many parents are either too indolent or cannot do the work of the home. Hence in addition to its normal duties, the school is forced to become a substitute. To do perfect work under such circumstances would require a miracle.

But where in the school has failed, whose failure is it?

Dr. Channing said as long ago 1833, "No office is higher than that of the teacher. The first minds of the community should be encouraged to assume it. Parents should do all but impoverish themselves to induce such to become the guardians of their children." He goes on to place the wise educator above the preacher in importance, and says: "In truth the ministry now accomplishes little for the want of that early moral training, by which alone a community can discern truth from falsehood, to receive the higher and broader views of duty." Now that is pretty strong. But does the responsibility rest as much as Dr. Channing would have us think on the shoulders of the teacher? It used to be remarked and was given the credence of gospel truth, "Any one can teach school." Did you ever hear any one can get married? Which has the most truth in it?

We must remember, too, that of fifteen or sixteen hours of the twenty-four, the child, particularly if he be a boy, is very "alive and kicking," and only five of these hours are under the direct control of the teacher. The remainder is too often a constant and active reserve of bad training at home. Do not forget who had the child completely under control the first six, seven or eight years of his life. These have given it such an intellectual and moral bias that no training of the teacher will fully obliterate. If the prelate had realized the truth of the proverb, "We must cut our garment according to our cloth," he would not say "The public school teaches immorality even licentiousness among our boys and girls." The physician would hesitate ere he said, "The system of education is to blame for the decline of physical vigor among the young," for it is apparent that

only he who can control the whole life and habits of the child can give it the physical training it needs. Richard Grant White would not growl, "You are directly responsible for the multiplicity of scalawags and for the appalling amount of loaferism."

In a village at which "the axis of the earth sticks out visibly," an editor commenting on the conduct of some boys at a public meeting, held the teachers of the public school directly responsible for the conduct of those boys.

Well, there are clearly defined limits to a teacher's work. Largely as he is responsible for moral improvement it is hardly fair to make him the scapegoat upon whose back are piled all the sins of a community. Undoubtedly it sounds a little harsh to carry the idea that the majority of parents do not train their families well, and without doubt you are thinking of a proverb I will not quote. We teachers are not in the habit of sparing each other. At every teacher's meeting our faults are told us plainly.

In the eyes of all men we are to be "wise as serpents," yet "harmless as doves." We are told "example is better than precept," therefore our lives must be pure, strong and true, what they should be anywhere. Neither is precept to be forgotten; nor must it be administered in allopathic doses, but here a grain and there a grain, always with sugar coats, and given with unerring judgment. Indeed our sins are set in array against us till we wonder if we are not past redemption. But knowing the world cannot get on very well without teachers, we buckle on our armor and begin again with renewed determination. You could hardly expect of such a one anything less than a degree of self defense. But as good an authority as Alexander Bain says, "There has been undoubtedly very great mismanagement in every department of authority; in the state, family and school." It is perhaps in the family the mischief is most widely spread and baneful. Is it any wonder some one else says, "There is great need of teaching parents the art of the moral and physical training of children." Is it not high time a demand be made for better parents? Parents who teach their children a love of truth by loving it themselves? Yes, the only way to train your child is to give yourself a thorough drill.

But perhaps I have dwelt all too long on trying to show how closely the life of the parent is wound with the life of the child, by endeavoring to extricate the teacher in so far as he has left his true sphere of aid and assumed that of substitute. And that wherein the teacher has failed as substitute is the failure of the parent.

But we must not look too much on the dark side. While it is evident lack of disposition, tact or something on the part of the parent, in the education of their children is appalling, and makes our brain reel, our heart quake, and our faith tremble, still we rejoice that there are parents good, true and wise, who are meeting their responsibility with that wisdom and fidelity that cannot but elicit a "well done."

Perhaps no influence has as great an effect on the character of children as interest in their work and sympathy with them in their burdens. Dr. Holland says "sympathy is the open door to all reform." If this be true, if the erring and even the vile are saved by this mystic agency, it would seem that sympathy with a young, pure heart, would be an almost certain preventive of that heart's ever straying. You demand of the teacher, and rightly, that he live close down to the child's life, that he think once more his thoughts and feel again the stir of his ambitions. Right here the parent is drawn into the closest relation with the child. For he has the opportunity of knowing the child as no one else can know it, of gaining its confidence as no one else can gain it. If he do not have that knowledge, if he do not possess that confidence, the effect on its education is no less, but the education how different from that he intended it to be. The child will draw sympathy from any source that first offers itself. This will often be far from ideal, still, who but the parent is responsible for the education?

The parent has the social development of the child, almost wholly under control. Dr. Holland says, "children brought up with few, or no associations will grow up either boorish or sensitively timid. The ordeal through which such children pass, to make them at home under other than the paternal roof, is most severe. While those always used to society, are educated in all its forms and graces without knowing it." Is not this the reason so many of our people hold themselves aloof from all social contact? And if perchance, they are lured once out of their shell of reserve and their sensitiveness tells them they do not appear as well as their neighbors, back they draw themselves not soon to venture forth again.

People need to get out from home more, thereby learn to be less selfish, more sympathetic. It is because the multitudes, etc. The more we know people, the more will we love them. Someone has said we do not know people well enough to love them easily, we only know them well enough to hate them with difficulty. [And it is because the multitudes are laboring for merely selfish ends, that although we see written on many a sign-board of life's highway, "excelsior," too often must we read on the sands of disappointment, "shipwrecked." But do not understand society to be only an overdressed assemblage in an overheated, illy ventilated ball room. Neither must you think you cannot be in society, because you do not belong to New York's much talked of Four Hundred, or even the Upper Ten of some country town. I think Dr. Holland was thinking of an evening spent with perhaps, only a few congenial souls, you will find them in country and in town, who, seeing each other often, get really intimate. The lighter amusements, the not-to-be despised, "best bib and tucker," to be used only as "stepping stones to higher things." It is in time of trouble that the heart most needs sympathy. It asks it only from those who know it well. It is in such society that this intimacy is gained. Therefore, it is a school where we may prepare to give comfort to the heart around which earth draws sable curtains.

A prominent author says: "Society is food for children. Contact with other minds is the means by which they are educated." Are you denying yourself and family these social advantages till you get rich? You may scrimp and scrimp, make and save, till you are as rich as Croesus. But has not more been paid than it is worth? It is well and right to teach your children economy. But it is not such a use of money as will add most to the volume of life the true economy? And cannot the parent teach this more effectively than any other? Let us turn yet again to the pages of Holland. "God's blessings are not cumulative. The manna that fell in the wilderness fell every day and spoiled with the saving." We are told not to lay up for ourselves treasures that moth and rust corrupt and thieves steal. Does that mean the failure of some speculation that promised well, or the picking of the safe lock in which our gold is? It may. But there is a deeper meaning. The gold may still be preserved to us and the moth have eaten away the rust, corroded, the thief stolen all the noble desires, and higher purposes, we expected our increased wealth would enable us to carry out.

I once said something to a farmer about children being kept out of school to work in tobacco. "Well," he said, "it is no injustice to the child, for with the money made from the raising of it, much more than the few days lost at school, could be made up, and we can afford to send them much longer than we otherwise could." Not from my superior knowledge of the bringing up of children, but from a vague impression of the truth of the above quotation, I replied, children reared to think that lightly of school duties, would never be likely to wish to carry their education very far. Subsequent events sustained me in my prophecy. The manna had spoiled with the saving.

Then how much the parent may do to lead the child to habits of observation and interest in the outer world about him. Arbor Day seems like a real providence—a grand opportunity. Sometimes we hear, "We have too many holidays." Might not an interest be awakened by Arbor Day that would far outweigh in its real benefits an ordinary day at school. Under the auspices of the state a lesson of patriotism as well, as one in nature. It would be difficult to analyze the refining influence of flowers and trees. It may be we would have to go back, and from a labyrinth of uses they have been to us, away in the infancy of our race, there extricate in part the reason. If we turn to Holmes in his popular "One Hoes Shay," we will read in one of its spicy stanzas:

"In fact, there's nothing that keeps its youth,
So far as I know, but a tree and truth."

It may be that we have imbibed from them the idea of perpetual youth. However that may be, we will leave it to the philosophers to settle, but we must accept the fact.

Looking back over the history of the world we find that the noblest of

all ages have paid their tribute to them. We read of the Greek philosophers holding their schools in groves and gardens. Jewish bible history is fragrant with "Cedars of Lebanon," which were to the Jew a symbol of strength and beauty, even as the oak is to us.

The hanging gardens of Babylon show in what esteem they were held by that great ancient empire. Coming down to our own times it is needless to speak of the universal use of trees and flowers in the adornment of the homes of our best people.

They gladden the rooms of the living, are linked with every tender association of life, and kindly bloom a beautiful emblem of love over the graves of our dead.

How interested will the young minds become watching the different flower forms, learning how the seeds germinate, how the leaves unfold, till it is filled with awe and wonder, and wishes to know more of the process of nature. It will not, you may be sure, stop with plant life, but reach out into other realms, and led gently on step by step, at last looks up in reverence from "Nature to Nature's God." Christian.

I know a wise, busy, little mother, whose boys always have a pansy bed from which they pick all the flowers they wish. Who doubts they are the better for taking delight in picking a bouquet for "Auntie, for some less fortunate child than themselves, for a sick mate, or even for looking into their cheerful faces." It was from thus contemplating a wee blossom that Tennyson drew inspiration to sing:

"Flower in the crannied wall,
I pluck you out of the crannies;
Hold you here, roots and all in my hand,
Little flower — but if I could know what you are —
Roots and all, and all in all,
I should know what God and man is."

But all this and no word of books? Are the three r's themselves to be relegated to the shades of oblivion? Do you know what Dr. Dolmes says? "I believe in life rather than in books." We all know full well that this comes from a man who did not despise books. Think you that the child brought up to mingle in refined society, to take delight in watching the opening buds of spring, to note the golden harvests, to revel in the song of birds, and to repeat to the sympathetic ear its delights, will despise the books that speak to it again of nature? I think you will agree that he will take an interest immeasurably increased thereby.

In conclusion, it seems clear that the family is the most potent influence in society for good or ill. That which is begun at the marriage altar does more to make or mar the beauty of the social fabric than any other agency. The influence that goes out from the home can never be fully estimated.

Do not think this does not mean our home. We are only humble folks. The country round is made up of just such homes as yours. Most people

are "common folks." Yet it remains true that as some one has said "not overwise men and women have made their influence more powerful through the example of their daily lives in the home circle and among their neighbors than any great sermon, oration or book that has come within the sphere of those affected."

The simple home scene pictured by Scotland's favorite bard, and brought vividly to your mind at the mere mention of "Cotter's Saturday Night," expresses to us something of the influence of the "parent pair," however humble, who do their duty. For we cannot but admit with Burns:

"From scenes like these old Scotias grandeur springs,
That makes her loved at home, revered abroad,
And howe'r crowns and coronets be rent
A virtuous populace may stand the while
A wall of fire around our much loved isle."

"Truly, parent especially, a sacred burden is the life you bear;
Look on it, lift it, bear it solemnly,
Stand up and walk beneath it steadfastly.
Fail not for sorrow, falter not for sin,
But onward, upward, till the goal ye win."

Mr. Faville-- I have no questions nor suggestions to make with regard to that excellent paper. I merely wish to commend it.

Eldred Smith, Rolling Prairie-- That paper expresses my sentiments, and I wish to tender my sincere thanks for the suggestions it contains.

Adjourned. !

LOOKING BACKWARD IN WISCONSIN.

BY MRS. IDA TILSON, WEST SALEM.

Very few facts and values stand isolated and independent. We learn to measure them by comparisons. For instance, we understand darkness because light has been seen, and know silence through sound. Looking backward to past toils and deprivations from present scenes and privileges, may add greatly to contentment. The following reminiscences, therefore, seem interesting and profitable. They have been gathered from the lips of Wisconsin pioneers, and, though the events are mainly located in my native La Crosse valley, are typical of early days throughout the state.

Situated at the foot of a great lake, around which land commerce must go, Chicago, then as now, was a natural radiating point, and few were the early settlers of Wisconsin who did not pass through that city; but their chief concern was to get through as soon as possible, away from its muddy

streets and green-coated ditches, which did not prophesy to them of solid stone blocks and modern water-works. The easily tilled and fertile prairies beyond beckoned persuasively. The railroad lines north and west of Chicago being few and incomplete, steamboats, stages, and canvass-covered "mover" wagons, as they were called, were all in requisition. Thirty or more of these wagons would sometimes pass a given point in a day. Instead of elaborate tables and commodious hotels, now welcoming us at every turn, one hungry wayfarer of "ye olden time" holds up in contrast the following bill of fare: Sour bread without butter, black molasses, pork and small potatoes, and muddy coffee. When we eat thanksgiving feasts commemorating our Pilgrim fathers, reduced to a diet of roasted corn, we might, with propriety, also meditate upon our Wisconsin fathers.

Early settlers often had to ford the unbridged rivers, whether the streams were deep and icy or not. When water was so high as to enter a wagon-box, its inmates, with quick adaptation to circumstances and commendable regard for health, drew up their feet. Timid women closed their eyes and held their breath. Occasionally an unfortunate box poetically floated off, and started down stream, while, assisted by overhanging branches, its occupants scrambled out unromantically wet. For some time there were no well turnpiked roads, and the new highways were noted for their many inequalities and gullies, then called "pitches." A pioneer relates that when one of these was approached, herself and children slipped from their seats to the bottom of the wagon-box, and prepared for a shock, while her husband stood by the heads of their oxen encouraging them. After a significant and dreadful pause, with a "do or die" spirit of recklessness, the frightened beasts would plunge forward. As each successive Rubicon was passed, the family temporarily resumed their normal positions. On that identical road, I myself, at the tender age of eighteen months, was thrown from my father's arms directly under the horses' heels, while my father himself, without any previous acrobatic practice, hung to the end-board with his feet. Only a kind providence and a gentle beast preserved me to prepare this paper. At a very early day, so many oxen were in use that a team of horses was as noticeable and high toned as a modern phaeton drawn by a fine Hambletonian. By degrees only, was the land broken and enclosed. For a time the neighborhood cows roamed at pleasure, occasionally, with curious eye, looking through windows at the housewives as they attended their domestic concerns. This made great perplexity which side of a house to call the front, and where to place woodpile and clothes-line. Tangled underbrush on the bluffs, and long, luxuriant grass on the prairies and swamps, made bringing the cows home at night not so romantic a task as poets elsewhere have given us to understand. One early settler, then a lad, sometimes searched hours for his father's stock, while he was wet with dew, uncomfortable, and his health endangered. Now, by an interesting

coincidence, and in compensation for his faithfulness perhaps, fat cattle have made him a wealthy farmer.

Freight often went astray, exploring the country on its own account, and much perplexity was occasioned by the lack of telegrams and quick intelligence. One pioneer's household goods were delayed on the way six months. Through the kindness of a merchant, he obtained information that they were at Galena, whither he wished to repair after them. In those boxes were two new pairs of boots, so he could not afford to buy others, although the one pair with him was entirely worn out. In this extremity he determined to borrow, and poured forth his heart to a neighbor, who assured him he would be glad to do such a favor had he any boots himself. But the neighbor possessed a good pair of rubbers, which were offered and accepted, our traveler hoping the public would regard them as evidence of rheumatism rather than poverty. As his journey was undertaken in a hot dry July, on a steamboat, you will readily perceive how comfortable and appropriate his foot-gear was. Both men in after years owned finely improved farms and numerous boots, and enjoyed many a laugh over such reminiscences. The above mentioned boxes contained a full culinary equipment, hence the housewife while awaiting their arrival could afford to purchase but three knives and three forks. Three visitors coming at once, she, like an infant, ate "spoon victuals." Generous friends had filled boots, shoes and other nooks in those boxes with apples, and had kindly added a jar of butter, which, after six months of such seasoning, must have been "apple butter" indeed. Another pioneer, after several weeks, found his household stuff at Rock Island, in time, fortunately, to secure passage home on the last boat up the Mississippi that fall.

The lumber for one early frame house had to be rafted three miles before it reached a point from which it could be hauled to its destination. Another builder brought his lumber by team from a mill thirty miles away, and made shingles from pine trees on his own land, which proved fully as durable as modern shingles or Chicago tar. An occasional temporary roof was covered with bark or "shakes," as they were called, while the family beneath sometimes suffered from fever and ague "shakes." One family lived a whole summer in their canvas-covered "mover-wagon," waiting for a home their very own, and were never more healthy. The popular dwelling of an early settler was not exactly a Swiss or Queen Anne cottage. Great uniformity in style prevailed. The walls were usually of logs, and one room below and the same above was all, unless the owners had an uncommonly large family. Carpets and blankets made movable partitions, quite after the Japanese manner, now attracting attention. An early physician, when told it was so healthy there could be no practice, replied that he should wait till people built new, tight houses, painted, papered, furnished and shut them up, then he would have business. Home-made furniture had quite a rage.

Possibly it imitated the Queen Anne slender style, for some instances of broken china from falling cupboards have been reported. On our porch are two chairs fashioned from oak many years since by a pioneer. The stylish occupants of a gay carriage, lately passing by, were overheard to wonder whether these could be genuine "antiques."

At that time, most outdoor implements were as clumsy as expensive. Reapers each required four horses then, so their manufacturers evidently attempted to return the money's worth, though few farmers could afford to own a machine except in partnership. Those were the days which tried men's muscle. Did the weary binder, in danger of sunstroke, and straining every nerve to fill his "station," ever look forward to that modern binder with muscles of iron and nerves of steel?

Wells were rare, and for a time water brought from the neighboring streams was generally used. A very hot July day, two women, one carrying a babe, walked over a mile to a well, merely for a drink of cold water. They filled a coffee-pot from which they sipped the precious liquid on their return way. Now, towering wind-mills on every side insure abundance of pure water for man and beast.

People then, as now, sometimes went out to get their Thanksgiving or Christmas dinner. An early settler thus secured nine prairie chickens at three shots. Joy was brought to a family that had no butter, by the present of a piece of salt pork; this put on a high shelf outdoors, as suitable precaution for preserving such a choice bit, was speedily found and devoured by their still hungrier dog, which, however, soon after absconded, moved, doubtless, by wounded feelings and impaired digestion. When there was little stock in this state beefsteak retailed at twenty-five cents a pound, and butter at fifty. One woman, by great exertion, secured a pair of fowls and a setting of eggs, from which, like that milkmaid, she anticipated great returns. Soon after a fine brood had hatched, some midnight marauder, presumably a fox, destroyed her entire flock without regard to age, sex, or previous condition. Only a few feathers remained to tell the horrid tale. Very near the site of that tragedy are now two secure, well-stocked poultry houses, where thieves of no kind can break through and steal.

The scattered cranberries, bitter cherries, and sour plums which Nature kindly offered were accepted in the same spirit, and young orchards were started from eastern apple seeds. A noteworthy survivor is A. J. Phillips' famous and hardy Northwestern Seedling, of Vermont seed, planted by my father. When we see Wisconsin's cranberry and blackberry plantations, Russian apples, and Jessie strawberry, when we learn the high rank she holds in fruit culture, dairying and wealth, we measure thus our state's progress.

Often the aborigines still traversed their old trails. One incident serves to show that our red race is not without gratitude. An Indian woman who could talk no English nor make her sentiments known, but who had

received numerous favors from a white settler, began searching the latter's cupboard one day for something. Her Caucasian friend awaited developments. A bowl was found, eagerly clutched and filled with wild strawberries, then abundant and delicious. She positively refused proffered pay, and by motions made plain that they were a free gift. A frightened woman giving four of the savages everything eatable she possessed, was calmed and reassured when one, in good English and with gentlemanly manner, said, "Thank you."

Pioneer women had need of courage in many forms. Snakes were numerous and easily entered the low log houses. A housewife saw one approaching, grasped her ax and struck it a ponderous blow, then ran in and closed her door. When her husband came, she proudly took him to see what an awful reptile she had killed by cutting off its head. But it was discovered that, through fright and excitement, she had only cut off three inches of tail, while the rest of his snakeship went "fancy free." A neighboring woman of steadier nerve brought down, with her gun, many a prairie chicken for her dinner. Now, both ladies are enjoying the comforts and repose of nice, substantial homes. Many unnecessary fears were raised by sensational and harrowing tales of the "Wild West," which explains why a newly arrived woman, passing a company of peaceable men at work on a mill, asked her husband whether they were robbers who would murder her.

Though we are glad snakes have disappeared before the march of civilization, and would not exchange our present for the past, yet one feature of that period, the profusion and variety of wild flowers, many wish they could restore. Even in my recollection, surrounding groves and pastures were gorgeous with beauties now preserved only in a few rare gardens or by an occasional enterprising florist, and I recently paid several dollars for a volume, containing pictures of flowers which I gathered by the apronful when a child. Hardy golden rods and wild asters seem to follow settlement, and replace the tenderer painted cup, wild phlox, butterfly flower, gentian, forget-me not, moccasin flower, and others. Then, untouched by the lumberman's ax, miles of stately pine forests extended over northern Wisconsin,—the woods primeval where Hiawatha sang and hunted. It is said the winters, though cold, were even, an early breaking up was sure, and disastrous spring frosts were then unknown.

Separated from familiar scenes and old friends, the pioneers were hungry for social enjoyments. Entertainments were well patronized, and good old-fashioned all-day visits were rulable. Some famous cooks of that day took clothesbaskets full of their own cooked provisions to picnics, and no one departed hungry. The lonely and unsophisticated westerners also became easy victims of the traveling amateur artist. I, myself, when four years old, tried nine times one day before a daguerreotype was obtained that my own mother could recognize. Friends who patronized the same artist, say nothing would induce them to part with those pictures;

whether valued for correctness or for mirth provoking qualities, you may guess.

Education was in its infancy too. The system of town superintendents was then in vogue, and our systematic, efficient graded schools unknown. Every pupil studied, according to his "own sweet will," and I have heard of a teacher with thirty scholars who had thirty classes. When we recollect that Wisconsin was the first state to make a real and noticeable success of Normal schools for teachers and of institutes for farmers, and we observe the confidence and respect which her horticultural and agricultural publications command, we may conclude, upon the whole, that our state's progress has been both symmetrical and solid.

The first religious services were sometimes held in new barns, before otherwise occupied, and the groves, nature's temples, invited the camp meeting. All were eager to improve the few gospel privileges offered, and, on one occasion, two ladies walked three miles to attend meeting. Of course, no musical instruments assisted in songs of praise, but everybody who could, sang. Now, when we have churches, choirs and anthems, the worshippers are proportionately fewer. Oft-recurring privileges have lessened not the real, but the supposed need of embracing each opportunity as it comes. Sectarian lines were not early drawn, and great friendliness and cordiality were felt between denominations. When dinner time overtook a traveling clergyman, he quite as readily knocked at Methodist as at Baptist doors. A Baptist minister seeking refuge from a shower at a Congregational home, was bantered by his hostess about being afraid of water. "Oh," replied he, "I don't want it sprinkled on."

The past is "gone as a tale that is told," and its actors, as well as acts, will soon be numbered with those that were, but are no more; yet, happily, the results of their heroic endeavor, patient industry, and wise planning abide, and some practical conclusions can be deduced from this review. Is it not true that the character of its early settlers largely determines a region's future history? In this state they were anxious for school and church privileges. They were capable, intelligent, progressive, and attracted to themselves later settlers of a similar type. There has been that combination of New England economy, New York enterprise, western energy and foreign endurance and industry, which will everywhere "make the wilderness blossom like a rose." These pioneers were willing to sacrifice instant and lesser good for future greater prosperity. Many left homes equal or superior to our present surroundings.

Wisconsin then, as do Nebraska and Wyoming to-day, offered cheap homes, which by patient waiting and persistent toil, would secure young people of moderate means, that independence and competence they could not hope for in an old, preoccupied country. Seldom will one hear old settlers talk of those days that they do not tell how happy they were, planning and anticipating, which shows happiness consists not in how much

we have, but in the way we use our possessions and with what purpose we labor.

Long may the old pioneers live among us and gently tread life's declining path, and may it be said of each one, "In righteousness do their works live after them." We who have grown up here and received so much at their hands can, in our turn, appreciate those lines beloved by them, written originally of an eastern home:

"How dear to my heart are the scenes of my childhood,
When fond recollection presents them to view,
The meadow, the orchard, the deep tangled wildwood,
And every loved spot that my infancy knew:"

HORTICULTURAL INFORMATION.

FROM REPORTS FURNISHED TO THE SECRETARY OF THE STATE HORTICULTURAL SOCIETY.

Early last August this society published the following circular which was mailed to over four hundred correspondents in our state. From the replies much valuable information has been received relating to the horticulture of Wisconsin.

DEAR SIR:—This society desires information on all matters of horticulture in our state, and I ask your assistance in procuring such facts as may be of interest and importance to that industry.

To help you in making the report I will mention a few of the leading points.

1. I desire the name and postoffice address of all fruit growers in your vicinity; varieties and quality grown, where marketed and at what price. If fruit is grown for home use the fact is just as important.

2. If from any cause the crop has been injured this year so as to effect quantity or quality, please state these causes.

3. How does the crop of 1890 compare with that of 1889.

4. Have small fruits been satisfactory in quantity and price?

5. What proportion of the farmers in your vicinity raise all the fruit the family needs of any and all varieties usually grown in our state?

6. Are apples grown in your vicinity either for home use or for market, if so what varieties and what is the nature of the soil and exposure?

7. Do your farmers as a rule, have good vegetables and fruit gardens?

I shall be pleased to receive your report at the close of the fruit season, together with any fact or suggestions relating to the horticultural interests of Wisconsin.

If not convenient to answer these questions please hand this circular to some one who will do so.

Very respectfully yours,

B. S. HOXIE,

Secretary State Horticultural Society.

It is not expected that the replies to the above queries are absolutely correct, but approximately so. In some instances the conclusions were arrived at from actual observation by census enumerators. In many instances the summing up of several replies has been given in one as for the county, in others the town is only mentioned.

To question 5. "What proportion of the farmers in your vicinity raise all the fruit the family needs, of any and all varieties usually grown in our state? The following answers do not show a very satisfactory state of affairs:

"None of the farmers in this locality"—*Georgetown, Grant Co.*

"Not one in one hundred."—*Alma Center, Jackson Co.*

"Not one in ten."—*Madison, Dane Co.*

"Not one in five."—*Brown Co.*

"Less than one-fifth."—*Monroe Co.*

"But a very few farmers."—*Iowa Co.*

"About one-half of the farmers of *Sauk Co.* raise some fruit."

"About one in fifty raise some."—*Vernon Co.*

"Not one in twenty."—*Ithaca, Richland Co.*

"Possibly ten per cent. of the farmers in *Waukesha Co.* raise what small fruit they need."

"A few raise what strawberries they need, other fruits only a very few raise what they need."—*River Fall, Pierce Co.*

"Not one in twenty, and more than one-half not any."—*Summit, Waukesha Co.*

"About 1-5 raise some small fruit."—*Oconto, Oconto Co.*

"Possibly one in one hundred raise all they need."—*Rock Co.*

"Only a very few."—*Sherwood, Calumet Co.*

"Not one-fourth in *Racine Co.*"

"In the vicinity of *Appleton* about 20 per cent, other towns in the county not as many.

"About one in ten."—*Darlington, La Fafayette Co.*

"I should think a majority of the farmers in this vicinity raise some small fruit."—*West Salem.*

"Not one within five miles of *Brillion, Calumet Co.*

Question No. 7. Do your farmers as a rule have good vegetable gardens? The answers to this question are not as numerous but perhaps more satisfactory.

"Most of them do." — *Sheboygan Co.*

"About half." — *Dodgeville, Iowa Co.*

"Most of them do." — *Viroqua, Vernon Co.*

"About three-fourths do." — *Waukesha Co.*

"The Germans have good gardens." — *River Falls, Pierce Co.*

"Not more than one-half have good vegetable gardens." — *Summit.*

"Vegetable gardens are fair." — *Rock Co.*

"Vegetable gardens fair." — *Sherwood, Calumet Co.*

"About one-fourth have good gardens." — *Sylvania.*

"The Germans have fair gardens." — *Eau Claire Co.*

"About one half nothing but a potato patch." — *Rosendale.*

"The Germans as a rule have good gardens." — *Outagamie Co.*

The following extract from an answer to the above circular contains much useful information:

"The strawberry crop was good and quality excellent. Currants, raspberries gooseberries, all produced excellent crops. The Industry gooseberry mildewed for the first time and was worthless. Grapes not well ripened, owing too cool weather in August.

There are quite a number of fair orchards in this vicinity. Duchess and Fumeuse furnishing most of the fruit for market. So far the Wealthy gives good satisfaction, tree vigorous and fruit very fair. The McMahon also shows a perfect tree, and a very showy fruit. Our soil is prairie and oak openings—limestone formation. Orchards seem to do the best on the light-colored opening soil. My own orchard of a hundred trees is on a north-west exposure protected on the west by an artificial grove. My aim is to have a good fruit and vegetable garden. For two years we have grown our own quinces. Scores of our friends and neighbors never saw a quince tree in bearing until they saw them in our garden.

I have been looking a "little out" this summer and I believe that not one farmer in twenty-five has a first rate garden,—one which supplies fruits and vegetables in succession through the season from May until November, or vegetables the year round. About one half of the farmers have absolutely nothing but a potatoe patch. One-third perhaps have some kind of a garden with beets, cabbages and peas, with strawberries and weeds. The remaining one sixth have a fair garden, but it is quite generally neglected. I wish every farmer realized how much a good fruit and vegetable garden added to the health and comfort of the family.

From my one half acre this year, besides have an abundance of almost every variety of fruit and vegetables. I have sold from the surplus ten dollars worth, besides giving away as much more. Whatever I can do to advance horticulture in our state I will gladly do it.

Very Truly

Rosendale.

GEO. C. HILL.

Mr. Church's letter is also full of valuable information.

WALWORTH, JAN. 2, 1891.

B. S. HOXIE, Sec'y State Agr. Society:

Dear Sir: Your letter of July 24th is before me. Poor health is my only excuse for not replying sooner, for the subject of the circular is one of great importance to our state, and one which I feel great interest in. I have had an experience of nearly fifty-four years trying to raise such fruit on the farm as would be desirable for family use and I regret to say much of my labor has been lost in trying to raise such varieties as were successful in the eastern states. But new varieties have been introduced and of good quality which will supply the need. Fameuse have done well with me, and I have one tree now in bearing planted out forty-four years ago which is a beautiful, healthy looking tree now. Others since planted of this variety are doing well. The worst enemy the apple tree has is the nurseryman who does not use proper cions or stocks but raises the tree for what money there is in it.

Last year for the first time with me apples were a failure. Trees blossomed full and looked healthy, but dropped their fruit when about the size of bird's eggs, we had some excessive hot weather about that time which in my opinion was the cause. The Baily Sweet has done fairly well on my place. Duchess of Oldenburg is very hardy but fruit of poor quality. Our farm is level prairie and not so well adapted to apple orchard as white oak ridge land.

I have about forty varieties of grapes, including the best I could get. Most of the farmers intend to raise such fruit and vegetables as the family needs but many come far short of this.

For the real benefit of the family, every home should be surrounded with a beautiful lawn, beautiful trees, and well cultivated garden, well filled with all the varieties of fruit which can be grown in their part of the state. You may be assured that intelligence and happiness dwell in such a home.

Yours truly,

CYRUS CHURCH.

CHARLES R. GUY, River Falls—Many of the farmers in this vicinity raise what strawberries they want for family use, but none raise all the fruit they want unless it be of strawberries. Perhaps one-twentieth raise what crab apples they want of the Transcendent variety. The better class of farmers have very creditable vegetable gardens. Lazing farmers have poor gardens and they deserve them. I have about thirty apple trees of the new Russian varieties, set in 1887, which are healthy and vigorous—a few bore fruit this year but it is too early to count results. W. H. Putnam and Currier Bros., of River Falls, and Grant Bros., of Hudson, are large strawberry growers and ship in car lots.

DANIEL HUNTLY, Appleton—There seems to be an increased interest in raising small fruit. Strawberries were a better crop the past season than in 1889. The same may be said of raspberries and blackberries. Apples a

poor crop. Grapes have been grown less than any other fruit until within a few years, but now, thanks to the farmer's institutes, people are beginning to wake up. If agricultural papers were taken more it would be different. Education in this line is slow when so many take none at all.

FROM BRILLION, CALUMET CO.—About all the information I can give to the queries in your circular is to expose the utter disregard for this branch of agriculture which exists in this vicinity. There are no farmers near here who make a business of fruit growing. There is not a farmer within six or eight miles of Brillion who raises all the fruits or berries usually grown in Wisconsin, which his family needs, though of course there is occasionally one who has enough of one or two kinds. The village of Brillion, with 600 or 700 inhabitants, sends to Milwaukee for fruits of all kinds.

Judging from my own experience, strawberries, raspberries and blackberries will all do well here. Apples are grown in small quantities for home use; mostly fall varieties. Duchess, Tetofski, Fameuse and Hall Stripe, seem to do well. We have a diversified soil of clay and sand. I have a few dozen of Concord and Worden grapes which do well with winter protection. Farmers are mostly Germans, which means as a rule, good vegetable gardens.

E. G. FULLER. *

ITHICA, RICHMOND CO.—We do not consider this a good year for fruit. We had less of every variety except cherries. Strawberries did poorly, too much rain at times and too little, followed by extreme heat which caused the vines to mildew and the fruit to scald. Raspberries did better, the crop was fair and prices from 10 to 12 cents per quart. Grapes about one-half a crop. All varieties that are inclined to mildew were badly affected. Agawams that in favorable seasons gave us 1,000 lbs. of nice fruit, we this year harvested less than 500 lbs. of second class fruit. The people are beginning to know the difference between good and poor fruit, so they prefer the Worden to the Janesville, and the Salem to the Champion. The varieties of apple which succeed best here are Duchess, Fameuse, Haas, McMahon and Tetofski.

S. I. FREEBORN.

JANESVILLE, Wis. Small fruits this season were satisfactory in quantity and price. Apples a very light crop: Grapes with me were nearly one half more than in 1889. I have this season, that went to market 1,500 pounds, averaging 8 cents per quart. This yield was from 120 vines, occupying twenty-eight rods of ground. Allow me in this connection to remark that it is not so much the kind of fruit we plant — provided it is adapted to our climate — as it is the care we give it, for herein lies our success.

Very respectfully,

J. S. MCGOWN.

In reply to your circular letter of July 24th, can say that the apple crop with us is an entire failure apparently caused by a scorching southwest wind when the trees were in full bloom.

In 1888, we had a good crop of apples, free from any imperfections excepting the Fameuse, which were badly scabed or rusty. Small fruits have been abundant where cultivated, excepting the blackberry which suffered from the extreme heat of July. Prices of small fruits have been satisfactory.

Not one farmer in twenty raises all the fruit his family need, more than one-half of the farmers do not raise any small fruit, and many do not have a good vegetable garden and some none. I visited every farm and home in the town last June and took particular notice of the fruit and vegetable supply grown on the farm. But few farmers have a good vegetable garden. Apples are not grown largely either for home use or market, some farmers not having a single tree. The soil is generally a sandy loam and most of the town is level.

The best trees are found where planted on a northern exposure. Grapes are a success where planted and properly cared for, the Concord being the best for all localities.

The most suitable varieties of apples for this locality are Fameuse, Duchess of Oldenburg, Tetofski, Tallman Sweet, Red Astrachan, Plumb's Cider, Wealthy and the Russets, of different varieties.

The main cause of failure here with the apples is careless and improper handling of the trees at the time of planting, failure to mulch at once and often no mulch is used, and no care given to the tree after planting.

Have never had a western grown tree fail me in planting while eastern trees almost always die at once or soon after.

Very respectfully yours,
DANIEL WILLIAMS.

EAU CLAIRE, Wis., Aug. 12, 1890 — In answer to your circular of July 28, I would say, generally, that there are no fruit growers in this vicinity who raise anything else than small fruits, and these mostly by market gardeners who sell at our own home market. The quality of fruit this year was No. 1, except strawberries, which were small owing to the dry weather. Apples are not grown here except Siberian crabs, and these do best on a clay loam soil, with north exposure.

Very truly yours,
J. F. ELLIS.

WALDO, Wis., Sept. 14, 1890 — Most every farmer has an orchard of fall and winter apples — some have pears and plums, as well as small fruit gardens. Apples this year a light crop, small fruit about the same as last year. There are five cider mills in three townships, so you can see that this is an apple country. These mills are driven by horse or steam power. Our soil is mostly clay.

Yours truly,
C. M. SIBLEY.

SPARTA, Wis., Oct. 12, 1890—The strawberry crop was quite light and the quality below the average owing to the wet weather and excessive heat during time of ripening. The blackberry crop was good, yielding from 66 to 175 bushels per acre, and sold at an average price of \$3.00 per bushel. The interest in horticulture and the production of more varieties of small fruit is largely on the increase here. Our local horticultural society is doing good missionary work and the meetings are interesting. We intend to make Sparta the center of horticultural interest for the state.

W. H. HANCHITT.

O. C. COOK, of Oconto—There were 17,000 bushels of apples raised in this county last year, and the hardy varieties do well. I sold 500 trees to a man in Menominee, Mich., sixty miles north of here, six years ago, and he tells me that he now has nice fruit and plenty of it. This is only one case among many which goes to show that good apples can be raised here if we have adapted fruit. I have an orchard of 800 trees, and this year raised nearly 1,500 bushels of apples.

WILL F. OGILVIE, Ono, Pierce Co.—The soil here is a black loam with clay sub-soil—a heavy timbered country. Some of the orchards have protection from the northwest, while others are on northern slopes with no protection, and I cannot see much difference in the appearance of trees. We have some very fine wild plums growing here. One on my own place seems to be a hybrid—a choice plum and different from anything I have seen; fruit excellent and large sized as compared with wild ones.

KANSASVILLE, Racine County—Not seven per cent. of the farmers here are fully supplied with fruits which will grow upon their grounds. Old orchards have a great variety of fruit, but the sorts mostly set now are Duchesses, Pewaukee, Walbridge, Tetofski, Femeuse, and Yellow Transparent. Translucent, Hyslop, and Whitney No. 2 for crabs. The enemies of the apple are hard winters, codling moth and scab. Spraying with Paris green in 1889 saved seventy-five per cent. of my crop from the worms. This year a very light crop. I have apple trees which have been growing forty years, now four to six feet in circumference. Golden Russett, Fameuse, Talman Sweet and Colvert. Very few of the newer sorts promise greater vitality.

Our soil is burr oak opening—clay with vegetable mould on top. There is no failure with grapes here where they are protected in winter. Plums are destroyed with curculio. Spraying with Paris green does not protect.

Yours truly.

JOHN RHODES.

GEORGETOWN, Grant County—Small fruits of all kinds were deficient in quality this season, being sour and flat to the taste. I infer that the same cause which prevent the secretion of nectar in honey producing plants

and flowers, also robbed our fruits of their usual supply of sweetness. The cause, whatever it was, I leave the wise ones to answer or explain.

The dry season of 1889 prevented strawberry plants from making a vigorous root growth, which, as a consequence, made a light crop this year. Raspberries and blackberries were checked in growth from the same cause. The crop of 1890 was only about one-half as much as that of 1889, but prices were some better. As a rule farmers have inferior fruit and vegetable gardens, but every year the demand for fruit plants is on the increase. Our farmers need educating as to the varieties of apples best adapted to localities.

Yours truly,

H. GILLMORE.

HORTICULTURAL PRODUCTS.

HORTICULTURAL PRODUCTS PRODUCED FOR THE YEAR 1889,
AS REPORTED IN BUSHELS.

Potatoes	11,534,893
Root crops.....	1,316,298
Cranberries	48,566
Apples	989,956
Strawberries.....	35,451
Raspberries.....	13,118
Blackberries.....	19,700
Currants.....	1,908
Grapes.....	14,089

HORTICULTURAL PRODUCTS GROWING IN THE STATE OF WIS-
CONSIN FOR THE YEAR 1890.

COUNTIES.	NUMBER OF ACRES.							
	Cranber- ries.	Apples.		Straw- berries.	Rasp- berries.	Black- berries.	Currants.	Grapes.
		No. acres.	No. trees.					
Adams		85	1,257	10	2	1		
Ashland								
Barron			619	3	3	13	14	
Bayfield.....								
Brown	27		10,366	14	1			2
Buffalo		35	1,378	8	1			15
Surnett.....	385	26						
Calumet.....		618	20,556			2	1	
Chippewa.....		1,172	604	7	2	1		
Clark		62	1,923					
Columbia.....	27		21,719	75	22	9	2	9
Crawford.....			20,447	21	5	1	6	
Dane.....		2,767	51,527	51	34	20	3	18
Dodge.....		1,227	27,404	9	6	6	1	1
Door.....	78	236	11,586	3				
Douglass.....								
Dunn.....	2	12	1,117	13	4	3	3	
Eau Claire.....		16	897	5	3	1	1	
Florence.....		2	12					
Fond du Lac.....		1,106	39,940	56	62	112	7	11
Forest.....								
Grant.....		2,933	41,656	24	7	17	4	61
Green		961	29,440	21	16	7	2	7
Green Lake.....	16		16,332	6	3	7	1	1
Iowa.....	1	615	19,039	2				13
Jackson.....	510	58	2,712	80	43	20	138	
Jefferson.....	6	4,087	42,301	37	11	58	10	85
Juneau.....	875	8,069	4,320	9	7	2	4	11
Kenosha.....		1,477	47,993	164	22	1		173
Kewaunee.....		625	40,581					
La Crosse.....			4,889	66	3	1		23
La Fayette.....			16,116	6	7	7		
Langlade.....			243	2	1	1	2	
Lincoln.....			740	1				
Manitowoc.....	2	1,420	55,178	2				
Marathon.....	347	88	1,658					
Marquette.....	40		4,317	12				
Marquette.....	59	684	2,156			1		

HORTICULTURAL PRODUCTS—Continued.

COUNTIES.	NUMBER OF ACRES.						
	Cran-	Apples.		Straw-	Rasp-	Black-	Grapes.
	berries.	No. acres	No. trees.	berries.	berries.	berries.	
Milwaukee.		2,416	50,573	51	13		15
Monroe.	400	308	9,364	32	16	18	1
Oconto.	1		7,482	3			
Oneida.							
Outagamie.		425	10,772	4	13	2	2
Ozaukee.			32,797			9	
Pepin.			1,020				
Pierce.			6,571	16	2		6
Polk.	8		905	9			1
Portage.	162		2,034	32	4	8	1
Price.	1	23	15	7	100	100	2
Racine.		1,880	57,783	65	2	3	1
Richland.		351	15,197	12	4		4
Rock.	7	1,725	54,669	51	25	13	14
St. Croix.		51	3,420	80	27	2	1
Sauk.			17,347	41	63	12	33
Sawyer.							
Shawano.	15	95	8,783				
Sheboygan.		2,757	118,523	18	9	7	2
Taylor.		2	65				
Trempealeau.			1,677	5	11	7	1
Vernon.		508	18,332	12	18	10	2
Walworth.		2,580	62,119	22	9	8	6
Washburn.							
Washington.		1,746	48,065	16	1	1	1
Waukesha.			75,998	52	20	8	6
Waupaca.	123	340	10,442	19	4	5	1
Waushara.	78	93	3,672	6	1	5	
Winnebago.	88	735	16,523	73	57	68	18
Wood.	2,701		1,560	33	10	31	
Total.	5,868	44,414	1,184,525	1,365	744	591	550

The above statistics are from the biennial report of the secretary of state as reported to that office. The *unreliability* of these reports may be shown from the fact that Burnett county reports twenty-six acres in orchard, but no trees. Columbia county reports no acreage but 21,719 trees. And so we might follow in the list of nearly all the products named. The value of these reports, if there be any value in statistics, should be in the correctness of statements.

SECRETARY.

TREE FRUITS IN THE NORTHWEST. HOW CAN WE INCREASE THEIR HARDINESS?

BY PROF. E. S. GOFF.

Read before Waukesha Horticultural Society.

Perhaps no other question appeals so strongly to the horticulturists of the northwestern states to-day as this. We can grow small fruits successfully with winter protection, and abundant experience has shown that this may be given at a very slight cost. But what of the tree fruits? In favored localities the hardiest varieties of the apple are fairly successful. The pear and cherry succeed in fewer districts. Other tree fruits not native to our own country are at present failures with us. The important question for us to settle, and which I propose to briefly discuss here is, can the hardiness of the fruits with which we are now partially successful, be so far increased that they may become more successful? Can we hope to make the apple a profitable fruit for the farmer to grow who resides in the southern half of Wisconsin? And if so, how can this be accomplished?

I will first consider certain facts in relation to the propagation of varieties. When we propagate a plant by means of grafts or cuttings, we do not, as every nurseryman knows, change the variety. We simply remove a part of the original plant in the shape of a cion or cutting, and transplant this to another place where it continues to grow. All the Ben Davis apple trees that have ever been grown, are divisions or subdivisions of the original Ben Davis tree, the cells of course continuing to multiply by growth. The Ben Davis is probably neither more nor less hardy to-day than when it originated. It may be, and doubtless is, influenced to some slight degree by the stock upon which it is worked, and by the culture that is given the tree, but this does not effect the truth of the proposition just given. Where the original Ben Davis tree would not have stood, no Ben Davis trees will stand. Here we have the solution of the failure in Wisconsin, of orchards planted with varieties native to the milder climates of the eastern states. One way then in which we cannot truly increase the hardiness of our fruits is by continuing the propagation of old varieties by grafting. I do not mean to affirm that advantages may not be gained by top-working sorts that are weak in the trunk or roots upon stocks that are abundantly hardy in these points. I do affirm, however, that we cannot hope to acclimate by grafting apples that cannot at present endure our climate.

When we plant the seeds of an apple or pear, on the other hand, we do not propagate the parent tree. Each of these seeds contains an embryo, a miniature tree, which, though nourished by the parent tree, is not a part of it in the sense that the cion is a part of the tree from which it was taken.

It may be the result of a cross-fertilization between two trees of different characters. Whether this is true or not, the seedling plant will not necessarily re-produce the parental form. There is probably a period in the life history of the embryo in the seed when it is susceptible to external influences that may materially effect its character. Of this subject we know too little, but this much we do know, that while the cion will reproduce its parent 999 times in every thousand, the seed will do so scarcely once in a thousand times. Some of the seedlings will bear poorer fruit than the parent, others may bear better fruit; some may be less productive than the parent, others more so, but few or none will be duplicates of the parent. It follows then that in growing fruit from seed, we have a chance of *improving* quality, or productiveness or hardiness, while in propagating by grafting the chances of improvement are practically none.

Here we have the reason why seedlings or orchards in Wisconsin have so often contained trees that endured the test winters that swept away all their grafted neighbors. It was not because grafted trees are necessarily less hardy than others, but because the seedling trees varied in hardiness, while the grafted ones did not.

So much for theory. Can I give any facts that go to show that the hardiness of fruit trees ever have been increased by growing from seed? The culture of the orange in Italy offers a case in point. For centuries the sweet orange had been propagated exclusively by grafts, and so often suffered from cold that protection in winter was necessary to ensure a crop. In the year 1709, a severe freeze occurred that destroyed many of the trees. The growers again took courage and replanted their orchards with grafted trees. All went on as usual until the winter of 1763, when a much harder freeze came that wiped out so many of the orange orchards, that experiments began to be made in growing the sweet orange from seed. It soon appeared that the seedlings thus raised, furnished varieties that were larger, more productive and harder than the former grafted kinds. The author from whom I quote these facts states that more was accomplished toward naturalizing the sweet orange in Italy by growing seedlings during a period of sixty years, than had been accomplished by grafting during many ages.

Whatever may be said against the Russian apples, it is generally admitted that they possess abundant hardiness. And how came they to be so hardy? The lamented Mr. Gibbs, who accompanied Prof. Budd on his Russian tour, has given us a clue to the secret. He tells us that in the many districts of Russia the apple has been propagated by seed for generations. Varieties that were not able to endure their trying climate of course perished, and were no longer propagated. The hardiest remained and continued their kind. Thus a process of natural selection has been going on for ages, and the result is that apple growing is there possible in the latitude of Northern Labrador and Southern Alaska, and where the spirit thermometer sometimes registers fifty degrees below zero.

But what practical lessons have these remarks for the farmers of Wis-

consin? Are we not in the condition that the Italian orange growers were after the terrible winter of 1768? Our orchards of grafted varieties have been swept away by unprecedented cold, and few have courage to replant them. This is a favorable time for experiments. The Italian orange growers conquered by growing seedlings. Why may not we do the same with our apples? We have one advantage they had not. We can reap the benefit of the centuries of naturalization that has been going on in Russia, and if the Russian varieties cannot be adopted directly into our orchards through their lack of quality, we can at least infuse their hardiness into our seedlings. By crossing them with our best and hardiest native sorts, there is no good reason to doubt that we can produce apples that shall be the equals of the Russians in hardiness, and of our finest natives in quality.

What I would advocate is this: Select half a dozen varieties of the best Russian apples and plant these by the side of as many of our best and hardiest native varieties. Plant the trees pretty closely so that their limbs when full grown will intermingle a little and thus promote cross fertilization. Then as these come into bearing, save and plant just as many seeds from the apples as you can. Grow the seedlings in wide nursery rows until they bear, and you have opportunity to test the fruit. Then thin out the poorest, leaving the best. In this way you will supply your own family with apples and very likely you may originate one or more varieties that shall prove a boon to apple culture in Wisconsin. Then when you have secured an excellent hardy variety, return to the grafting again. We cannot do without grafting, but until we have something to graft, we had better grow seedlings.

But it may be asked: What is our Experiment Station doing? Why doesn't it grow the seedlings for us? It has already some hundreds of seedlings growing, and expects to have many more. But Wisconsin is a great state, while its Experiment Station covers but a few acres, much of which is necessarily occupied with experiments in other departments. We shall do what we can, but we cannot do much alone at seedling growing. In past experience the best results in securing new varieties have come, not from a few spasmodic efforts on a large scale, but from a multitude of small trials in many different localities. I had much rather have a thousand seedlings grown by a hundred different men on as many separate farms than to have them all grown on one farm. The chances of securing improvement would be much greater, especially if the seeds were taken from trees growing on the hundred different farms. The conditions surrounding the embryo during its susceptible period would vary far wider than if the seeds were all gathered from a single orchard.

If I could once succeed in impressing these truths upon the farmers of our state, the future of successful apple culture would be settled.

WHICH ?

By J. WAKEFIELD, FREEMONT.

This is an age of inquiry, an age of investigation, and, as might be expected, an age of improvement. Men and women are more independent than they were a generation or two ago—independent in thought, independent in expression, independent in belief. They rely more upon their own investigations than upon “the traditions of the ancients.” And the world is being benefited by their independence. It is wiser and better—more benevolent, more liberal, more christian, and, we might add, happier.

Man is a wonderful being, the only animal endowed with reason—a reason that gives him superiority over the brutes, that enables him to inquire into and learn many of the designs in creation, many of the natural laws which govern and control the universe.

It is by a knowledge of those laws that we are enabled to secure or avoid much of the good or evil in the world. God made the good, man the evil. This world is full of evil as well as good, but man has his choice, and Providence is not to blame when he chooses foolishly.

The good will never be forced upon us; much of the evil may be avoided. Man is a “free moral agent,” else punishment for transgression would be little short of vindictiveness and goodness would not be entitled to its reward.

In the business affairs of life how many fail for want of a right start! The successful merchant never purchases his goods by chance. The mechanic rarely manufactures an article that his customers do not want. The doctor never lays in a stock of quinine when febrile diseases are unknown, or blue pills only where he thinks his patients hanker after such kind of physic. The wise preacher would hardly be found declaiming against human cussedness in a community already overstocked with goodness.

So in everything. People are apt to look before they venture. The cautious young man never picks out a wife by chance. He may be wild, or worse, may gamble, drink beer, or smoke and chew tobacco, may have other silly and disgusting habits, but he deliberates when the subject of matrimony comes up, and seldom “goes it blind.”

So with the prudent, sensible, pretty young lady, and we believe our young ladies are generally of that class. She deliberates before joining herself with a male of the other sex, and although she does not expect to find perfection, she usually gets as near that rare virtue as possible. At least, Mr. President, we believe *our* wives managed that way.

This chance business never pays. Battles may be won by chance, but campaigns never. The general who wins a campaign always plans it before hand. He studies the probabilities and provides for mishaps, and all his moves are made in accordance with those plans.

It would never do to run a farm by chance. A simpleton might scatter grain, but it takes a little wisdom and much experience to know just where to do it, when to do it and how to do it successfully. A man may be a successful merchant, a first-class mechanic, a cute lawyer, and yet not know enough about farming to tell what kind of trees pumpkins grow on, whether dried apples are raised on vines or bushes, or at what age muley cattle cut their upper front teeth.

It is all nonsense to think that human knowledge comes of its own accord. It must be sought. We must question nature to learn her valuable secrets. Our reason was given for that very purpose. If we were asked to define "man" our definition would be: *an animal that asks questions.*

We always like to meet the man who is continually asking questions, who always wants to know the "what" and "which" of everything, who is ready to fire his interrogation points at you on sight. The world may ridicule his inquisitiveness, but wise men are made that way. The mouth that is always open must occasionally catch something, while the closed lips are not a sure indication of wisdom.

So in horticulture this chance business will never develop the perfect apple of the future, for we cling to the belief that the apple is still lingering somewhere in the is to be. Science will yet bring it, but science is not the offspring of chance. It comes only by study and experiment, and that is just what our societies are now working at. Glorious work! work fit for the highest type of humanity — work helping to remove the "curse," that for thousands, perhaps millions of years resting upon the vegetable as well as the animal world.

Horticulturists of Wisconsin! Allow us to ask a few questions. What are we here for? To have a fine time — to enjoy the hospitalities of some of the most hospitable people in Wisconsin? To find a few day's relaxation from our labors at the expense of others? In short have we met here "just for the fun of the thing?" God forbid! We have met to ask and answer a few questions, to gain information that may be of benefit to ourselves and those who sent us. To learn, as far as possible, what we can and what we cannot do — which kinds of fruits to trust and which to let alone.

We have accomplished much, may well be proud of what has already been done. But our work is only just commenced. It will take generations, may take ages to complete it, to bring the flowers, the delicious berry and the apple back to their original state, when the creator pronounced them "good." But scientific culture and continued care will do it, will finally rob even the thistle of its sting, and the long-neglected crab apple of its pucker.

J. S. Harris, of La Crescent, Minn., kindly sent his manuscript report on seedling fruits to this society. We make no excuses for publishing it in

this volume, because of the fact that Wisconsin soil and climate is so similar to that of Minnesota. Horticultural problems in one state very nearly find their counterpart in the other.

SECRETARY.

REPORT OF THE SEEDLING FRUIT COMMISSION.

BY J. S. HARRIS, LA CRESCENT, MINN.

Mr. President and Members of Minnesota State Horticultural Society: I do fully realize the arduous work that is required of this commission, and the importance of having the work done carefully and well, and I have the honor to report to you that I have performed it conscientiously and as thoroughly as circumstances would permit. I started out on August 22, and spent three days in Fillmore county. We found here the largest and best crop of apples that has been raised since 1884. The orchards are composed too largely of crabs and hybrids to be profitable to their owners in a commercial point of view, but we should estimate from what we saw the whole apple crop of the county would represent a value of thirty thousand dollars. At August Kregel's, near Forestville, we found an orchard containing several seedlings grown from seeds taken from the Duchess apples. I should estimate their age to be about 15 years. Five of them produce fruit of fair size and in season somewhat later than the Duchess. None of them were in eating condition when seen. The trees appear to be healthy except that one of them has received injury from sun scald, which is not surprising, as the trunks of all of them have been pruned up to five feet, and some of them lean toward the northeast. The five varieties are said to cover the season from September to past mid-winter. In that vicinity and over the higher lands of this county the Duchess, Tetofsky, Whitney No. 20, Orange and Minnesota are a success, and the Wealthy, Hass, Fameuse and some other varieties have so far recovered from injuries that they are bearing considerable fruit this year.

At Carmonia a few of the once famous Pickets seedlings yet remain, they have become large trees, producing heavy crops, but most of them are subject to blight and their size and quality does not recommend them for commercial orchards. At Etna, D. Michner has one of the most profitable orchards in the state. The paying part of the orchard is planted to Duchess and Wealthy. He is engaged to some extent in raising seedlings from selected northern seed and has three in bearing that produce excellent late autumn fruit. After the close of the State Fair, September 15th, I visited the orchard of J. G. Miller, Richland Township, Rice county for the purpose of examining the the original Peerless apple tree. The tree was laden with fruit at that date. It stands nearly erect but leaning slightly toward the northeast. It has a clean trunk of about four and a half feet that sup-

ports a round compact head almost perfect in form. Some fruit had been picked for showing at the State Fair, but I should estimate what remained upon the tree at about three barrels. I found the tree in really good condition, which is remarkable when we take into account that for the last three years it has been closely cut for cions. In that time it has been multiplied into over fifteen thousand trees and a plenty of good cions could be cut this year. The tree is now twenty-three years old. Mr. Miller states that it originated from Duchess of Oldenburg seed. The fruit is of medium size and handsome appearance, and in quality, equal to the Wealthy. Its real season is mid winter, but probably with careful handling, may be kept later. Another seedling produced from the same source of same age is Miller's Janetin. The tree is larger than the Peerless, a strong grower and apparently hardy. The fruit is smaller, of fair quality and is in season through October. Trees free from blight; productive.

The George Miller tree, same age, is one of the best autumn apples I have ever met with, but the tree is subject to blight and a shy bearer.

Mr. Miller has a considerable number of younger seedlings from select seeds of the hardiest varieties, and will probably be heard from again in the near future. At Medford, Rice county, Mr. Wolford has originated several varieties of grapes from seed. Some of the varieties are as good as numbers that are found in the catalogues. One variety that he has named Medford Prolific, and believed to be a cross between the Delaware and Northern Muscatine, he claims is two weeks earlier than the Concord and fully as hardy. The berry hangs to the stem much longer than the Muscatine; it is a sweet grape with foxy flavor and may prove very valuable for localities where the Concord will not ripen. Mr. W. has some seedlings from Siberians that are good and prolific. September 18th we spent at Smith's Mill in Blue Earth county. Here find more seedlings. Alexander Douglass has some half dozen trees. One variety is about of the size and season of the Duchess. Another variety is of medium size, a smooth apple in appearance, some like the Peerless, but not so highly colored, and it has the appearance of being a good keeper. Another variety fruits much like a Siberian. The fruit would average $2\frac{1}{4}$ inches in diameter, and the tree, as I saw it loaded to its fullest capacity with highly colored fruit, was a beautiful sight. It is excellent for cooking and keeps well into January, perhaps longer. Three other varieties are equally as productive and beautiful, but the fruit is smaller. In this vicinity cranberries grow to great perfection, and it would seem to me that some attention ought to be given to their cultivation.

Our next objective point was Werthington, Nobles county. The Okobena tree we pronounced all right. The Daisy has a patch of sun-scald on the southwest side. The young wood of three or four year's growth is not discolored. Should these two varieties survive our next test winter I shall believe that we have got something good in them. Mr. Ludlow is experimenting with the Russian mulberry as a hedge plant. He showed us a

row that had been cut back to three feet high and kept in a trim and artistic shape by clipping the ends of the shoots twice during the summer. It makes a pleasing and very efficient line or garden fence. September 25. From Worthington we go to Windern, in Cottonwood county. The county fair is in progress at this place, the display of fruit is fine, but limited in varieties to Duchess, Wealthy, Transcendent, Hyslop, Orange, Minnesota, and two or three other varieties of crabs and a collection of native plums. The Wealthy apple is reported as doing even better than the Duchess here. The greatest losses to trees of late years has occurred from root killing. After night we drove out to Denson Cook's place, fourteen miles from Winden. Mr. Cook is engaged in experimental horticulture more extensively than any other man in western Minnesota. He has planted on his grounds almost every variety of apple and crab that has gained any notoriety for hardiness or other meritorious qualities, and including a great number of the newer Russians, and is keeping them labeled and recorded, so that if any of them show merit, he knows the variety and where it came from. He has a fine collection of native plums and some Russian seedlings that are thriving and brought some extra fine fruit this year. He has also some cherry trees and five varieties of Russian pear that are looking well. He is showing true heroism on the fruit question. He began the work and has continued it thus far under very discouraging circumstances, but he is bound to succeed and we trust that his name will yet be enrolled among Minnesota's greatest benefactors.

We spent about two days in our researches in Cotton Wood county, and saw much that was interesting. It was reported a few years since that some of the Mennonites had bearing orchards of trees from seeds brought over from Russia, with the apple we have not been able to get any such. We found many fine looking cherry trees, a few plums and pears, the pears of which some trees are 16 feet high, appear to be of a wild sort, are undoubtedly hardy, but unfortunately are not blight proof; the fruit we saw was small and only valuable for cooking. These people are great lovers of fruit and take good care of their fruit and forest trees, and whenever they can get adapted varieties, will succeed with them. At Joseph Wood's place, 6 miles from Winder, are some seedling plums that promise well and seedling gooseberries free from mildew, and that he describes as bearing fruit of very large size. His large fruited Russian mulberry is proving more tender than the common varieties. He reports the dwarf June berry as doing well and producing fruit of superior quality.

Our next visit is made with C. G. Patten, Charles City, Iowa. Mr. Patten is a director of an Experimental Station for the Iowa State Horticultural Society, and is making a specialty of testing the Newer Russians and Northwestern Seedlings, and is also engaged in originating varieties from selected seed. We saw at his place 8 varieties grown from seed of Duchess, all possessing some merit. His Duchess No. 3 (also called Patten greening), is the best of all. The original tree is 21 years old, so that it

has survived through two of the most trying winters that have ever visited the northwest. The tree is nearly perfect, it stands in a row with 7 Duchess of the same age and looks better than either one of them. As a nursery tree it is unsurpassed. It is an early and free bearer.

The fruit in size is from medium to large; the form is flat, round; color, greenish yellow, with dull to deep blush on the sun side. The flavor is a good acid, extra for cooking. The season is November and December; with careful handling it may be kept until February. There is another variety of this lot that produces a fruit of medium size and of superior quality for eating, we have lost the number; season, November. We took a great fancy to a tree of the Iowa Beauty. The tree is a vigorous and healthy symmetrical grower; fruit medium size, beautifully striped with red and covered with whitish bloom; flavor, a mild sub-acid; good; season, September to October. He has a considerable number of eight year old seedlings crossed between Duchess and some of the longest keeping American varieties, set alternately in rows with the best known Russians, with the view of testing their adaptability and comparative hardiness. They have been transplanted twice so as not to give them the advantage over root graft Russians which are of the same age. Several of the seedlings showed some fruit, while but one of the Russians, the "Beautiful Arcade," has borne any. In Houston county the old tree, Kleine No. 1, is doing well and matured a heavy crop of fruit. The variety has been named after the wife of Mr. Kleine (Catherine) and will hereafter be known by that name.

Several of the seedlings of E. Wilcox, La Crosse, Wis., are doing well as top grafts worked on crab stocks. The variety exhibited at our last winter meeting under the name of Wilcox Red Winter, is believed to be Scott's Winter, of Vermont. Steps have been taken to decide the matter, and the result will be announced in proper time.

A. J. Phillips, of West Salem, has a seedling tree that promises to be of great value for western Wisconsin and southeastern Minnesota. Tree, thirty years old; fruit, large; form, round, conical; color, light green, striped with pale red; flesh greenish white solid fine grained; sub acid, good; season, until March.

We called upon friend Gideon in November. He reports ten more seedlings as fruiting. Most of the fruit was gone at the time. None of the varieties will keep longer than the Wealthy and those we saw were not equal to it in other respects. He has a great number yet to fruit and we may reasonably hope for a long keeper among them.

Andrew Peterson has a variety named Wooly Seedling. Seems to be fully more hardy than the Wealthy. The fruit is of medium size, fine appearance and a good keeper. In our travels we have seen many varieties of the Siberian hybrids that seem to be well worth looking after for trial in those sections where the apple will not succeed.

In conclusion we would report that the outlook is hopeful. The interest in fruit culture is growing and everywhere we find more attention given to planting seeds with the view of originating new and better varieties.

AGRICULTURE — FLORICULTURE.

DEPARTMENT OF THE INTERIOR,

Census Office,

WASHINGTON, D. C., April 21, 1891.

As an industry floriculture has been for the first time made a subject of census investigation, and herein is presented a preliminary report thereon, prepared by Mr. J. H. Hale, special agent, under the direction of Mr. Mortimer Whitehead, special agent in charge of the division of agriculture "B" of this office. The material from which these statistics are compiled was obtained direct from the florists upon schedules specially prepared for that purpose and by personal visits of special agents to florists' establishments in all parts of the country. These figures are subject to revision before publication in the final report.

It will be noted that while floriculture has been carried on as a business in this country for upward of one hundred years, it is only within the past twenty-five years that it has assumed large proportions. Out of a total of 4,659 establishments 2,795 were started between 1870 and 1890, and of these 1,797 between 1880 and 1890. There are 312 commercial floriculture establishments owned and managed by women. These 4,659 establishments had in use in the census year 38,823,247 square feet of glass, covering a space of more than 891 acres of ground. The establishments, including fixtures and heating apparatus, were valued at \$38,355,722.48; tools and implements, \$1,587,693.93, and gave employment to 16,847 men and 1,958 women, who earned in the year \$8,493,657. Fuel for heating cost \$1,160,152.66. The products for the year were 49,056,253 rose bushes, 38,380,872 hardy plants and shrubs, while all other plants amounted to 152,835,292, reaching a total value of \$12,036,477.76 for plants. Cut flowers brought an additional income of \$14,175,328.01.

COMMERCIAL FLORICULTURE.

While flowers and flowering plants were grown for sale to a very limited extent in this country one hundred years ago, the business of the commercial florist has made the greater part of its development during the past twenty-five years, and the larger portion of this business the past ten years.

After inquiry of every florist in the United States, the report indicates that there was but 1 commercial florist in the year 1800, and only 3 estab-

lishments started between 1810 and 1820; 8 more were started in the next decade, 25 in the next, followed by 45 between 1840 and 1850, 96 between 1850 and 1860, 313 between 1860 and 1870, 998 between 1879 and 1880, and 1,797 between 1880 and 1890.

The dates of establishment in business of 72 per cent. of the florists have been traced, and judging from these it will be seen that 80 per cent. of the whole business has been developed during the past twenty-five years. The business being of so comparatively recent development, and never before having been brought within the scope of census statistics, there have naturally been many obstacles in the way of making a complete report. The florists have generally responded with remarkable clearness, and while some have not given all the information desired, and a few have failed to respond even to many repeated requests, it is believed that the figures given fairly represent the business at the present time.

Floral establishments were found in every state and territory except Idaho, Nevada, Indian territory, and Oklahoma, and while there is a possibility that there may be some small establishments in those places the most careful inquiry has failed to find them thus far. In the United States there were 4,659 floral establishments in the census year, 313 of which were owned and conducted by women. The total feet of glass in use in all these establishments was 38,823,247, and the establishments, including fixtures and heating apparatus, were valued at \$38,355,723.43. The value of tools and implements used was \$1,587,693.93. There were employed 16,847 men and 1,958 women, the combined annual wages amounting to \$3,483,657. Fuel cost was \$1,160,152.66. 3,425,600 wholesale and 17,630,094 retail catalogues are annually issued, while \$767,438.21 was paid for postage, \$1,161,168.31 for advertising, \$534,221.86 for freight and \$554,390.55 for express bills.

The total products were 49,056,253 roses, 38,380,872 hardy plants and shrubs, and 152,825,292 of all other plants, the value of which was \$12,086,477.76, and cut flowers to the amount of \$14,175,328.01 were reported as sold.

The greatest area of glass in any one establishment reported was 150,000 square feet and the smallest 60 square feet, the latter a cozy attachment to the sitting room of a New England farm house, from which the lady of the house sells annually \$35 to \$50 worth of plants and flowers.

There are in the United States 965 state and local floral societies and clubs, besides the Society of American Florists, and to these and the more than 358 horticultural societies, combined with the educational influences of the agricultural and horticultural press, is largely due the rapidly growing taste for flowers and their culture, so plainly indicated by the figures of this report.

The statistics here given have been obtained direct from the florists themselves in answer to questions sent them on special schedules, by personal visitation, and by the combined efforts of some of the florists' clubs. The California State Floral Society went so far as to aid in the good work

by appointing a special committee and making a careful canvass of the whole state, and the census office investigations fully corroborate the thoroughness of their work.

PRODUCTIONS AND SALES.

In this investigation it was found unadvisable to attempt to ascertain the number of plants propagated and sold of each variety, and therefore the inquiries were grouped under three heads: roses, hardy plants and shrubs, and all other plants, and under these heads most of the florists were able to furnish a complete statement of their business. Roses, both the plants and bloom, appear to be in the greatest demand. One firm making a specialty of rose propagation reports having sold one million plants in 1889. Their plants were mostly small ones, grown in 2½-inch pots, sent out by mail all over the country, and delivered promptly and in good condition.

Other florists make a specialty of the rose for the production of cut flowers. Others, again, grow only carnations or violets, and wholesale their productions to the retail florists in cities. Still others grow a variety of both plants and cut flowers, and wholesale most of the entire product; and, in fact, this is the business of nearly all the large establishments, while the medium ones, of from 1,500 to 5,000 square feet of glass area, do mostly local business, largely at retail, of both plants and flowers. Many of these florists also do a considerable business in the spring season in the arrangement and planting of both public and private grounds, and especially is this the case with florists located near the summer resorts.

Of the plants sold the demand in the northern and eastern states is greatest for geraniums, coleus, roses, pansies, verbenas, heliotrope, carnations, chrysanthemums, palms, ferns and fuchsias, nearly in the order named. In the south the demand is for roses, chrysanthemums, geraniums, coleus, palms and ferns, while California shows the demand to be largest for roses, carnations, chrysanthemums, geraniums, palms and pansies. There is also a very general and growing demand for aquatic plants, and specialists are giving marked attention to this branch of the business. Regarding cut-flower sales, reports show that, while there is a slight variation in the demands of the different markets, the greatest demand everywhere is for roses, followed closely by carnations. These two furnish about 65 per cent. in value of all cut flowers sold. Violets, chrysanthemums, lilies, hyacinths, smilax, bouvardia, heliotrope, pansies and tulips, in the order named, supply 25 per cent. more, while the other ten per cent. is made of orchids, tuberose, mignonette, primroses, camellias, daffodils and many others cultivated in a small way to supply a special or local demand. In the final report it will be the endeavor to give a detailed statement regarding each class of production, insect enemies, remedies, etc. As to the profits in the business from the different classes of plants, 80 per cent. of the reports mention roses as most profitable, carnations second, and violets third, while 20 per cent. rank carnations first, roses second, and violets third.

In Memoriam.

Charles Gibb, Abbotsford, Quebec.

By J. C. PLUMB.

When one eminent in the domain of useful industries shall have been removed from this life, it is fitting that co-partners who remain shall in some way set up a way mark, to let present and future generations know of their esteem for the departed and to monument their good deeds, which remain to bless the memory of one gone before.

Charles Gibb was born in the city of Montreal, and died at Cairo, Egypt, on the 8th of March last, in his 47th year of age. His father was English and his mother a native of Canada, but of English parentage. He was educated at Lennoxville College, but received the degree of B. A. at McGill University, in the city of Montreal. The object of his journey around the world, was in part for change and diversion, but more especially in the interest of horticulture — in securing new fruits, specimens of new eastern flora, and ferns from the island of Ceylon, and it was in the pursuit of fossilized ferns in the subterraneous caverns near Cairo, where he contracted the disease which caused his death. Having considerable means, and being free from family ties, Mr. Gibb was an extensive traveler, and generous patron of his chosen art, without which our knowledge of the Russian fruits from seeing them in their home, would to this day most probably have remained only a dream. It was thus that our most eminent authority on Russian horticulture, Prof. Budd, was enabled in 1882 to make with Mr. Gibb that first memorable tour of interior Russia, in search of something to add to our scanty list of extremely hardy fruits and trees for the cold north. Mr. Gibb's second visit to that country was to study the Russian nomenclature, and identify varieties by their true names.

The writer's first personal acquaintance with Mr. Gibb was made at the Centennial Exposition, at Philadelphia, in 1876, where his earnest inquiry for "something new and good for my country," was an earnest of his fu-

ture years of usefulness. Others of us on and from that date, came to most highly esteem him for his great work, which if not previous was primary to our Russian American Pomology. In the 1888 Report of the American Pomological Society, there may be found the first successful solution of the nomenclature of Russian fruits, by Mr. Gibb. Similar work was done for the Iowa State Report of 1885, in connection with which Prof. Budd says: "Few can realize — as I do — the debt we owe Mr. Gibb for his labors on these troublesome Russian fruit lists, a work of time and cost in securing competent translators in Montreal."

The annual reports of the Montreal and Ontario Horticultural societies for the past ten years, have given Mr. Gibb larger space than any other contributor, thus and by vote, recognizing his valuable work in that line. Prof. Penhallow, at the last December meeting of the Montreal society, said: "In the death of Mr. Gibb, the society has lost one of its most valuable members. His work was thorough and disinterested, and must redound to his credit for all time. Modest to a fault; warmly loved by all his friends; considerate for the welfare of others, his memory will remain fresh in the minds of all who ever experienced his warm hospitality or enjoyed his friendship." At the same meeting, R. W. Shepherd, Esq., of the Montreal society, spoke of Mr. Gibb as "prominently the most foremost pomologist of this country, to whom we are largely indebted for the start into life of the Abbotsford and other local societies of the province. Our Fruit Reports are indebted largely to him for their superior merit. We miss Mr. Gibb now, but will miss him more at our Fruit Growers' conventions which he would enthuse as no other one could."

Mr. Gibb was not only a busy experimenter, but also a collector of the best and rarest varieties from the world over, which are we learn in the hands of an able and faithful successor, who will continue to some extent the work of Mr. Gibb.

ARBOR DAY CELEBRATION.

The following circulars issued by this society and Superintendent Wells, of the educational department, will show the beginning of a work which we hope will be further carried out by mutual co-operation: Wisconsin State Horticultural Society and State Superintendent. It is too early now to report results of this year's work in beautifying school grounds, but from the interest manifested by letters received by me and Superintendent Wells, I take great pleasure in announcing that hundreds of school districts in our state have started in with improvements which will be as contagious as the good work will be a living monument, building up better lives as these helpful lessons are instilled into the minds of early childhood.

SECRETARY.

WISCONSIN STATE HORTICULTURAL SOCIETY,

Secretary's Office.

EVANSVILLE, WIS., March 18, 1891.

To Superintendents, Officers and Teachers of our Public Schools: Chapter 417, session laws of 1889, provides that the governor shall by proclamation set apart in each year, one day to be observed as Arbor Day, requesting all public schools and colleges to observe the same by suitable exercises having for their object the imparting of knowledge of horticulture in the department known as arboriculture, and the adornment of schools and public grounds.

That there may be a more uniform and general observance of the day by the schools of our state, the following address and circular has been prepared by the society:

J. T. Headly truly says, that "the highest aim of education is to form right character," and that is accomplished more by impressions made upon the heart than by knowledge imparted to the mind.

The awakening of our best sympathies, the cultivation of our best and purest tastes, strengthening the desire to be useful and good, and directing youthful ambition to unselfish ends; such are the objects of true education. Surely nothing can be better calculated to procure these ends than the holiday set apart for the public schools."

One object of these celebrations is to instill in the minds of the children and older people, a correct sentiment in regard to trees. "The groves were God's first temples." Love of home, love of country, is patriotism. The adornment of home and home surroundings is a principle we wish to inculcate in the mind of every boy and girl attending the public schools of our state.

Teach the child to properly plant and care for a tree and the holiest

recollections of an entire life will cluster around that tree and the home of his birth. Every tree thus planted makes the home happier, the life brighter, and he who plants it more truly a citizen and lover of his country.

Hoping the exercises of the day may be helpful to you in thus building up homes and forming character, we suggest that it be spent in literary exercises and social recreation. Arrange the forenoon program with short addresses, select readings, recitations, short essays and singing. Let these selections be such as will impart knowledge of plants, trees, and a love of nature.

The opening address should be from some one not only interested in our public schools but also well qualified to instruct in matters pertaining to trees. The whole district should be invited to take part in these exercises so that the knowledge gained and imparted may be for good and noble purposes.

After the noon recess, the ground having been previously prepared, proceed to plant such trees as have been procured for the purpose. If the size of the ground will admit of it, plant trees in clumps and groves, as Citizen's Grove, Soldier's Grove, Author's Grove, etc., etc. Let each grove have its proper place in the school ground, and give each tree the name of some distinguished person.

Evergreens always lend a charm to forest or landscape; let these have a place in your selection of trees, so that *your* school ground, either in summer or winter, may present an attractive appearance.

In planting the trees be sure that some one well qualified for the task is selected to take charge of the work, but let each child assist.

Should the day designated as Arbor Day, not be suitable by reason of storm or other causes, let the exercises be held in the schoolroom or public hall, and the trees and shrubs planted at the proper time when climatic conditions are favorable for such work.

The following list is recommended to select from as being adapted to almost every locality in our state, and we give preference in each class in the order named.

EVERGREENS.

White Pine, Norway Spruce, White Spruce, Arbor Vitæ, Balsm Fir, Austrian Pine and Scotch Pine. For more ornamental planting, and to be used in smaller space, Hemlock, Red Cedar, Siberian Arbor Vitæ, Dwarf Pine and Red or Norway Pine.

DECIDUOUS TREES.

White Elm, Hard Maple, Basswood or Linden, Norway Maple, Silver Maple, Weeping cut leaf Birch, American Mountain Ash, Green Ash, European Mountain Ash, Wisconsin Weeping Willow, Oak leaved Mountain Ash, White Birch, European Larch, American Larch.

ORNAMENTAL HARDY SHRUBS.

Snowball tree (*Viburnum opulus*), Cranberry tree (*Viburnum Sterilis*), Dogwood (*Cornus Sanguinea*), Spirea *Opulifolia*, Nine Bark, (*Spirea Prunifolia*), Syringa, Upright Honeysuckle, European Strawberry tree, Fringe or Smoke tree, Purple leaf Barbary, Lilac's White, Purple and Persian, Black Alder, Weigela Rosea.

HARDY CLIMBERS.

American Ivy (*Ampelopsis quinquefolia*), Scarlet Honeysuckle (*Lonicera Sempervirens*), Fragrant Honeysuckle (*Lonicera Caprifolium*), Virginia Bower, Clematis Virginia, Bitter Sweet, *Ampelopsis Veitchii*.

Climbing Roses are very desirable in many places in the school yard, and if fastened to a trellis which can be easily laid down and covered with earth or straw in the fall, may be planted with good effect. Moss Roses are also half hardy and easily covered for winter protection.

From long experience we have found that nursery grown trees, or those which have once or twice been transplanted, are preferable, and any nurserymen in our state, will sell for this purpose at wholesale prices.* But if not convenient to get nursery trees, do not hesitate to go to the woods and dig Elm, Hard Maple, Basswood or Linden, and Ash. We would not recommend taking evergreens from the forest unless very small, and these are not desirable.

In setting trees be sure that the earth is moist and well firmed about the roots. Mulch heavily at time of setting, weight it down with any material which will prevent the wind blowing it away, and there need be no failures.

The newspapers of the state are earnestly requested to publish this circular, or at least call attention to it, and urge upon their readers the propriety of observing the day. If the school yard does not need attention, help beautify the cemetery and the home grounds. Let this be the one day in the year to make the home surroundings more beautiful by the adornment of plants and trees.

M. A. THAYER, *President*,

Sparta.

B. S. HOXIE, *Secretary*,

Evansville.

* Some of the nurserymen who have offered to thus furnish:

Geo. P. Pepper, Pewaukee; J. C. Plumb & Son, Milton; W. D. Boynton, Shicton; Chas Hirschinger, Baraboo; A. G. Tuttle, Baraboo. Geo. Finney, Evergreen; G. W. Carter. Waterloo; S. I. Freeborn, Ithaca; Isaac Gale & Son, Waukesha; F. K. Phoenix & Son, Delevan.

ARBOR DAY.

STATE OF WISCONSIN.

A PROCLAMATION BY THE GOVERNOR.

In conformity with law, I, GEORGE W. PECK, governor of the state of Wisconsin, do hereby designate FRIDAY, May 1st, as Arbor Day for the year 1891, and I heartily recommend to the people of the state as well as the public schools, the proper observance of the day by the planting of useful and ornamental trees, shrubs, vines and flowers for the adornment of school grounds, streets, parks, cemeteries and the homes of the people. I also recommend such public exercises and ceremonies as shall lead to a knowledge of the climatic and economic value of forests, and store the mind with literary gems relating to plant life.

To awaken keener interest in Arbor Day among the public schools of the state, and to cause friendly rivalry among teachers and scholars of different schools in each county, I will give one thousand dollars, from money kindly contributed for that purpose, by friends of education, and placed in my hands to be distributed in premiums, for the greatest improvement in the decoration of schoolhouses and grounds, to be distributed under the direction of the superintendent of public instruction, to be paid in money or in books suitable for school libraries.

In testimony whereof I have hereunto set my hand, and caused the Great Seal of the State of Wisconsin to be affixed.

[SEAL] Done at the capitol, in the city of Madison, this 1st day of April, A. D. 1891.

By the Governor:

GEO. W. PECK,

T. J. CUNNINGHAM,

Secretary of State.

OFFICE OF THE SUPERINTENDENT OF PUBLIC INSTRUCTION,

MADISON, WIS., March 25, 1891.

In accordance with the views of the governor of Wisconsin, embodied in his proclamation designating May 1st as Arbor Day, the following circular is directed to the superintendents and teachers of our state to encourage the celebration of the day in all public schools.

The rapid disappearance of our forests and the gradual clearing of hills and valleys of trees are not only exerting a marked influence upon our climatic condition, affecting all plant growth, but point to a time when a scarcity of timber will entail great hardship upon the people. Our immediate wants for purposes of building and fuel will remain a constant factor,

necessitating not only the planting and cultivation of trees but the restraining of the wanton destruction of those that remain. The interests of the people will be best subserved when, in addition to this fact, it is clearly seen that the cutting away of forests is largely the cause of the variations of climate that contribute in no small degree to the certain diminution of the annual returns from the labor bestowed upon the soil. That such is the result is no longer a matter of dispute among thoughtful observers. The wisdom of a movement towards the restoration in part of this natural safeguard to the fertility of the soil is a common conclusion. Further discussion of the question is not within the scope of this circular; it is sufficient to know as Whittier says:

"That the wealth, beauty, fertility and healthfulness of the country largely depend upon the conservation of our forests and the planting of trees."

The purposes of the public schools make it the duty and privilege of those in charge to lead in setting an example in tree planting primarily for the effect it may have upon pupils, and secondarily for the pleasure that will be added to their surroundings. The time is rapidly approaching when the preservation and promotion of public interests will devolve upon the pupils now in school. The formative influences of the present instruction will largely shape their conduct as citizens. The public schools will prepare the public mind by the proper observance of Arbor Day for a more ready and certain solution of the forestry problem. Its celebration should aim:

(a) To instruct pupils as to the value of forests, their influence upon climate, soil and production.

(b) To interest them in the planting, care and cultivation of trees, that right ideas concerning them may be formed.

It is recommended that all schools share the benefits of the occasion in a way that will inure to the pleasure and profit of pupils, leaving impressions of a permanent character that will accomplish the objects mentioned.

PREPARATIONS FOR ARBOR DAY.

Each teacher in the state is cordially invited to inaugurate with his pupils — eliciting such aid as he can from citizens, and commencing as soon as the frost is fairly out of the ground — a series of daily exercises that shall remove from the school yard every vestige of refuse material, as sticks, stones, chips, sawdust, and other portables, and deposit the same at some unobjectionable point, fairly out of sight — shall pile all wood in an obscure place, suitably prepared — shall see that repairs are made in fences and gates, and if there is no fence, invite the board to build one, and at the same time to put the out houses, the schoolhouse doors, windows, wood work, plastering and floors in suitable repair, and the wood-work of the house itself in a proper state of cleanliness. All these details can be made practically a matter of recreation if the teacher is wise in management, and participates with the children and others in the performance of the several

acts. These preliminaries should be completed under the direction of the teacher, under such circumstances, as shall definitely constitute a part of the school training, and should be closed at a date not later than April 25th, so as to afford time for some preparation for the literary exercises of the first of May, and it is quite likely that more time than this will be needed, and suitable attention can be given to this preparation in alternation with the manual labor involved in the renovation of the premises.

PREPARING A PROGRAM.

The exercises should consist of a literary program and the ceremony attending the planting of trees. The afternoon of the day designated should be devoted to this purpose. The exercises should be adapted to the ability of the pupils, and consist of a variety that will be of interest to parents whose presence should be encouraged. Care should be taken that the program be not too long. Its arrangement must be left entirely to the judgment of the teacher. What is here given is offered as suggestive of the character of exercises suitable for the occasion.

The following features are recommended:

1. Opening exercises; song, reading of the Governor's Proclamation; statement of the objects of Arbor Day by the teacher, or a brief address by any competent person of the district.
2. Reading of extracts from authors on trees or forests.
3. Songs — Arranged to give variety and interest to the program.
4. Essays — These should be original and written upon subjects relating to trees, forests, their influence on soil, climate, their uses, etc.
5. Declamations — These also should be brief selections relating to trees, flowers, etc. If selections are at hand affording exercises in which several of the school may participate, give such a place upon the program.
6. Remarks by visitors.
7. A brief closing selection given in concert by the whole school.

AT THE TREE.

The number of trees to be planted should be previously determined, the excavations made, the trees secured and the names to be given them selected. There will remain the placing of the trees and the accompanying exercises. The trees should be dedicated to and given the name of some distinguished American, or the names of the earliest settlers of the community. A part of the exercises at each should be the recital by some pupil of a brief sketch of the public service of the person whose name it is to bear. It is advised that the pupils of each form be assigned the duty of assisting at one particular tree which shall afterwards remain an object of their attention to be guarded from the injury of thoughtless acts. It is of importance to enlist the services of parents skilled in tree planting and to permit pupils to assist in covering the roots and performing such other services as the incidents of the occasion may offer. Should the trees be

named after authors, the recital of quotations from their writings is recommended. An appropriate song by the pupils would be a fitting close to the out door exercises.

PRIZE FOR THE IMPROVEMENT OF SCHOOL PREMISES.

Reference to the proclamation of the governor will reveal a purpose of awarding a premium of \$1,000 to encourage the improvement of the premises of district schools, in ways or tidiness and decoration, between the dates of April 10th and September 30th. This inducement is offered, in part, in recognition of the educational value of Arbor Day exercises with the expectation that it may serve as a stimulus to their proper observance. The reward offered will be divided into seventy parts, giving each superintendent a distinct prize to be awarded to the district that, within the dates mentioned, will make the greatest improvement in accordance with the terms of the gift. The rewards will take such form as will make them of enduring value to the school. The offer is made by the governor in behalf of the schools in rural districts. He, however, desires the city and village schools to make the utmost of the advantages of the day, but thinks they need no other incentive than the desire to beautify their surroundings and enliven their schools with fresh and instructive exercises.

The superintendent in each county is hereby requested to determine by personal inspection, or otherwise, the condition of the premises of each district school in his county at a date not later than the 15th of April, or at the earliest practicable date after the disappearance of the snow and frost. This information should be such as will serve as a basis of judgment after September 30. Where it is practicable, the superintendent is advised to acquire the necessary data by personal inspection, making a written memorandum of the observations he may make. Where this cannot be done, the teacher, clerk, or other competent person or persons, should be requested to furnish the superintendent a full and accurate description of the school premises of all districts that signify a desire to compete for the reward. For this purpose it is suggested that a circular be issued directed to such person or persons, stating explicitly the information desired. Care should be taken to embody suggestions that will result in securing accurate data of the character and amount of rubbish on the school grounds, the condition of the fences, the size of the site, the kind and number of trees that adorn the premises, the condition and appearance of the building, internally and externally, and the means furnished for the preservation of apparatus, library books, and records of the district.

On or about September 30th, the superintendent will inspect the school premises of the competing districts, thus affording means for a judgment as to the greatest improvement that has taken place, and on a written report of the same to the state superintendent, dated September 30th, 1891, the premium designated will be awarded to the district by the governor.

Nearly six months' time is thus afforded for the process of renovation, planting, cultivation, training, growing and pruning of grass, plants and trees.

HOW TO PLANT TREES.

"Trees should be selected from nursery plantations or from those that have sprung up in open places, such as seedling trees along fences, so that there may be an abundance of the small fibrous roots. The roots should not be exposed to the sun or to a cold or drying wind, but kept damp by covering with moss, wet straw or canvas. In taking up a tree avoid cutting off the large roots too near the trunk. They should be carefully followed out to a convenient distance, and in setting them again they should have space enough provided without bending them. Besides the gain in nutrition thus secured by the tree, we have by this means an additional security in the bracing and support secured by a broad base and steady 'anchorage.' The ends of broken roots should be cut off smooth before the tree is planted. When digging the holes, the surface soil, being generally the best, should be thrown up on one side, and the poorer soil from below on the other. In filling in the better soil should be returned first, so as to be nearer the roots. If the soil be somewhat sterile, some rich loam, compost, or wood's earth, placed below and around the roots, would be the cheapest means of insuring success. In setting the tree it should be placed a trifle deeper than it stood before, the roots should be spread out so that none are doubled, and fine, rich soil should be carefully sifted in among them so as to fill every space. Unless the soil is evidently damp enough, the trees should be well watered as soon as they are planted, and this process in dry seasons should be repeated from time to time through the first and second years. This is a service that can be assigned to the scholars with great propriety, but should not be overdone. The soil should be pressed down and around the roots to give them a firm hold. The surface should not be rounded up around the trees, at least no more than to allow for settling. In shoveling paths in the snow, it is well to heap it up around the trees in winter, to prevent them from starting prematurely in the spring."

CARE OF THE TREES.

When planted the trees should be protected from injury. Care should be taken to keep each free from agencies that will tend to displace the roots. This can be done by driving one or more stakes close to the tree, to which it should be firmly lashed. If the grounds are not enclosed, stakes may be driven about each tree to which slats may be nailed. This will afford protection against intruding animals and prevent thoughtless pupils from wrenching any of them. Occasional watering in dry seasons, as stated above, should not be neglected. If the suggestion already made is adopted and a tree planted by the pupils in each Form, the labor of caring for these trees may be wisely assigned to the pupils of each Form respect-

ively. The teacher is requested to direct and supervise the efforts of pupils guarding against any disposition to overcare that may be detrimental to the growth of the trees.

LIST OF SELECTIONS.

For the convenience of pupils and teachers a list of selections is given. The preparatory work should receive early attention and the pupils given thorough drill. Additional subjects may be found in the *Wisconsin Journal of Education*.

LIST OF SELECTIONS.

Holly Tree,	-	-	-	-	-	Southey.
Woods in Winter,	-	-	-	-	-	Longfellow.
Mountain Daisy,	-	-	-	-	-	Burns.
Plant a Tree,	-	-	-	-	-	Larcom.
Forest Song,	-	-	-	-	-	Venable.
Forest Trees,	-	-	-	-	-	Cook.
Among the Trees,	-	-	-	-	-	Bryant.
In a Forest,	-	-	-	-	-	Southey.
Under the Willows,	-	-	-	-	-	Lowell.
Little Acorn	-	-	-	-	-	Mrs. Huntington.
Building of the Ship,	-	-	-	-	-	Longfellow.
Song to the Trees,	-	-	-	-	-	Miller.
In the Sugar Camp,	-	-	-	-	-	Alice Carey.
The Planting of the Apple Tree,	-	-	-	-	-	Bryant.
Woodman Spare that Tree,	-	-	-	-	-	Morris.
The Elm Tree and the Vine,	-	-	-	-	-	Bryant.
The Last Walk in Autumn,	-	-	-	-	-	Whittier.
The Reaper and the Flowers,	-	-	-	-	-	Longfellow.
The Palm Tree,	-	-	-	-	-	Whittier.
Under the Violets,	-	-	-	-	-	Holmes.
The Willow,	-	-	-	-	-	Mrs. Hemans.
To a Pine Tree,	-	-	-	-	-	Lowell.
Summer Woods,	-	-	-	-	-	May Howitt.
Golden Rod,	-	-	-	-	-	Goodale.
Historic Trees,	-	-	-	-	-	Delano.
Autumn Woods,	-	-	-	-	-	Bryant.
Forest Hymn,	-	-	-	-	-	Bryant.
The Lumbermen,	-	-	-	-	-	Whittier.
Children in the Wood,	-	-	-	-	-	Percy.
The Oak,	-	-	-	-	-	Hill.

SUBJECTS FOR ESSAYS.

The Forests of Wisconsin.	Our Orchards.
The Trees of Our Town.	Trees of Other Lands.
The Great Forest Regions of America.	The Enemies of Trees.
The Influence of Climate upon Trees.	Trees on the Farm.
The Influence of Trees upon Climate.	Historic Trees.
The Influence of Trees upon the Soil and Products.	The Origin of Coal.
The Uses of Trees.	What Trees Furnish for Our Use.
Why Should We Observe Arbor Day?	How to Take Care of Trees.
The Pine Tree in Wisconsin.	Trees Mentioned in American History
	Our School Grounds.

Give the children holidays
 (and let these be jolly days)
 Grant freedom to the children in this joyous spring;
 Better men hereafter
 Shall we have, for laughter
 Freely shouted to the woods, 'till all the echoes ring.
 Send the children up
 To the high hills top,
 Or deep into the wood's recesses,
 To woo Spring's caresses.

AMERICA.

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| <p>1 My country 'tis of thee,
 Sweet land of liberty,
 Of thee I sing:
 Land where my fathers died,
 Land of the pilgrim's pride,
 From every mountain side
 Let freedom ring.</p> <p>2 My native country, thee,—
 Land of the noble free—
 Thy name I love;
 I love thy rocks and rills,
 Thy woods and templed hills:
 My heart with rapture thrills
 Like that above.</p> | <p>3 Let music swell the breeze,
 And ring from all the trees
 Sweet freedom's song!
 Let mortal tongues awake,
 Let all that breathe partake;
 Let rocks the silence break,—
 The sound prolong!</p> <p>4 Our father's god! to Thee,
 Author of liberty,
 To thee we sing:
 Long may our land be bright
 With freedom's holy light:
 Protect us by thy might,
 Great God, our King!</p> |
|--|--|

PLANT A TREE.

He who plants a tree
Plants a hope.
Rootlets up through fibers blindly grope;
Leaves unfold into horizons free.
So man's life must climb
From the clods of time
Unto heavens sublime.
Canst thou prophesy, thou little tree,
What the glory of thy boughs shall be?

He who plants a tree
Plants a joy;
Plants a comfort that will never cloy —
Every day a fresh reality.
Beautiful and strong,
To whose shelter throng
Creatures blithe with song,
If thou couldst but know, thou happy tree,
Of the bliss that shalt inhabit thee.

He who plants a tree,
He plants peace.
Under its green curtains jargons cease,
Leaf and zephyr murmur soothingly;
Shadows soft with sleep
Down tired eyelids creep,
Balm of slumber deep.
Never hast thou dreamed, thou blessed tree,
Of the benediction thou shalt be.

He who plants a tree,
He plants youth;
Vigor won for centuries in sooth;
Life of time that hints eternity!
Boughs their strength uprear,
New shoots every year
On old growths appear.
Thou shalt teach the ages, sturdy tree,
Youth of soul is immortality.

He who plants a tree,
He plants love;
Tents of coolness spreading out above
Wayfarers he may not live to see,
Gifts that grow are best;
Hands that bless are blest;
Plant: Life does the rest!
Heaven and earth help him who plants a tree
And his work its own reward shall be.

— LUCY LARCOM.

Professor Sargent, who undertook ten years ago to ascertain the condition of the forests of the United States, estimated the yearly value of the lumber, fuel and other forest products at that time as more than \$700,000,000. Their value is now probably at least \$1,000,000,000, a sum that equals the value of our crops of wheat, oats, barley, rye, potatoes, cotton and tobacco taken together, and is greater than that of all our exports and more than ten times as great as the produce of our mines of silver and gold. It is estimated that the census report will show that we consumed last year, of sawn lumber alone 30,000,000,000 square or superficial feet. But such figures by themselves are meaningless. Let us consider, then, that this amount of lumber would load a train of cars 25,000 miles long, or sufficient to encircle the earth at the equator. And now, if we add to the sawn lumber, which is only a small part of the total produce of the forests, the timber, the railroad ties, the telegraph poles, the posts for fences, we shall have a train 72,000 feet long. If to this we add again the wood cut for fuel and for mining purposes, we shall have a train 288,000 miles in length, or long enough to reach from the earth to the moon and almost enough then left to encircle the globe twice! The weight of these forest products would be enough to load five hundred thousand (500,000) ships of one thousand (1,000) tons each! — ARBOR DAY MANUAL.

The trees which the children plant, or which they assist in dedicating, will become dearer to them as year after year rolls on. As the trees grow, and their branches expand in beauty, so will the love for them increase in the hearts of those by whom they were planted or dedicated, and long before the children reach old age they will almost venerate these green and living memorials of youthful and happy days; and as those who have loved and cared for pets will ever be the friends of our dumb animals, so will they ever be the friends of our forest trees. From the individual to the general, is the law of our nature. Show us a man who in childhood had a pet, and we'll show you a lover of animals. Show us a person who in youth planted a tree that has lived and flourished, and we'll show you a friend of trees and of forest culture. — JOHN B. PEASLEE.

WOODMAN, SPARE THAT TREE.

Woodman, spare that tree!
 Touch not a single bow!
 In youth it sheltered me,
 And I'll protect it now.
 'Twas my forefather's hand
 That placed it near his cot,
 There, woodman, let it stand;
 Thy ax shall harm it not.

That old familiar tree,
 Whose glory and renown
 Are spread o'er land and sea —
 And wouldst thou hack it down?
 Woodman, forbear thy stroke!
 Cut not its earth-bound ties;
 O, spare that aged oak,
 Now towering to the skies!

When but an idle boy
 I sought its grateful shade;
 In all their gushing joy,
 Here, too, my sisters played,
 My mother kissed me here;
 My father pressed my hand —
 Forgive the foolish tear;
 But let that old oak stand.

My heart strings round thee cling
 Close as thy bark, old friend;
 Here shall the wild bird sing,
 And still thy branches bend,
 Old tree? the storm still brave!
 And, woodman, leave the spot.
 While I've a hand to save,
 Thy ax shall harm it not.

— George P. Morris.

ARBOR DAY.

Off to the woods! Off to the woods!
 Boys it's a grand new holiday!
 Off to the woods for a green young tree,
 And we'll plant it ourselves, on Arbor Day.

Scamper and frolic? Gather the flowers,
 Shouting our merriest roundelay;
 The buds shall bloom, and the birds shall sing
 In the tree we plant on Arbor Day.

Joy to the thought of our own, own tree!
 Long may its branches shade our way;
 This task shall ever our pleasure be.
 Planting a tree on Arbor Day.

NOTE.— Teachers in need of appropriate selections, songs, etc., for Arbor Day, will find a very useful collection in a small pamphlet, "Arbor Day Leaves," prepared by N. H. Eggleston. This can be obtained by sending ten cents, in postage stamps, to the American Book Company, Chicago, Ill. If the school is located in a wooded district, improvement should be made

in the appearance of the grounds, as the conditions may demand. Preserve a desirable number of the growing trees and trim them in accordance with their needs.

Arbor Day is not a legal holiday. Teachers are not at liberty to close their schools, but are authorized to substitute Arbor Day exercises for the regular class work.

Attention is also invited to the circular issued upon "Arbor Day Celebration" by the Wisconsin State Horticultural Society, which embodies many helpful suggestions upon the choice, manner of planting, and after care of trees.

The advantages incident to neat, attractive surroundings should enlist the services and secure the active co-operation of teachers, school officers and patrons, in beautifying the school premises in every district. It is hoped that their united efforts may result in the successful observance of Arbor Day throughout the state.

Very respectfully,

O. E. WELLS,

State Superintendent of Public Instruction.

LIST OF NURSERYMEN AND FRUIT GROWERS IN
WISCONSIN.

Boynton, W. D., Shiocton, nursery grown evergreens and seedlings by the million.

Bendixen, W. J., Waupaca, small fruit grower.

Barnes, A. D., Waupaca, nurseryman.

Beales, O. M., Beloit, Box 741, small fruits.

Carter, G. W., Waterloo, Prop. Waterloo Nurseries.

Chappel, F. H., Oregon, grower and dealer in nursery stock.

Coe & Converse, Ft. Atkinson, nursery and small fruit.

Freeborn, S. I., Ithaca, Pioneer Nurseries.

Field, S. F., East Troy, farmer and fruit grower.

Fox, William, Baraboo, Prop. Mt. Airy Vineyard.

Gilmore, H., Georgetown, small fruit grower.

Gray, Warren, Darlington, Cottage Hill Fruit Farm, small fruit nursery.

Gaynor, J. A., Grand Rapids, cranberry grower.

Gale, Isaac & Son, Waukesha, nurserymen and fruit growers.

Hanchett & Son, Sparta, Badger State Berry Farm, small fruits a specialty.

Howie, John, Waunakee, farmer and fruit grower.

Hatch, C. A., Ithaca, bee-keeper and fruit grower.

Hatch, A. L., Ithaca, Hill Crest Fruit Farm.

Hirschinger, Chas., Baraboo, orchardist and nursery stock of all kinds.

Hamilton, C. H., Ripon, fruit farm, small fruits a specialty.

Jewett, Z. K., Sparta, Sparta Nurseries.

Jeffery, George, 2726 Lisborn Ave., Milwaukee, apples and pears a specialty.

Kellogg, Geo J. & Sons, Janesville, Belle Cottage Fruit Farm.

Leitch, John, Mazomanie, small fruit grower.

Loudon, F. W., Janesville, small fruits. Originator Jessie strawberry.

Mason, R. D. & Son, Ripon, small fruit growers. Plants for sale.

McColm, J. N., Plymouth, nurseryman and fruit grower.

Plumb & Son, J. C. Milton, nursery and dealer in all kinds of nursery stock.

Peffer, Geo. P., Pewaukee, nursery and small fruits.

Robbins, Geo. H. Plattville, grower and propagator of small fruits.

Seymore, Asa N., Mazomanie, small fruits. Dealer in plants and vegetables.

Steenfort H., Watertown, fruit and vegetable garden.

Springer, Wm., the Fremont nurseries.

Tuttle, C. A., Baraboo, nursery and small fruit.

Thayer, M. A., Sparta, fruit farm; small fruits in variety.

Warfield, B. C., Sandoval, Ill., fruit grower and originator of seedling strawberries.

Walstrum, Otsego, Mich. Prospect Nursery company, fruit and ornamental trees.

Zahr, Solon, West Bend, small fruit grower.

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ANNUAL REPORT
OF THE
WISCONSIN
State Horticultural Society

EMBRACING

PAPERS READ AND DISCUSSIONS THEREON AT THE SEMI
ANNUAL MEETING HELD IN BLACK RIVER FALLS
JUNE 26-27, 1890. ALSO AT MADISON JUNE 2-6, 1891.

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